The State of Canada's Forests

Sustainable FORESTRY: a Reality in CANADA

Canada

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Canada's Forests
Sustaining Our Country

For centuries, forests have been an intrinsic feature of Canada's society, culture and economy, and they will continue to be an immensely important part of our lives. For our children to enjoy their benefits tomorrow, sustainability must underpin forest management in Canada today.

The 11th annual report on the state of Canada's forests focuses on Canada's progress toward sustainability in forest management. The key to sustainability is balance—preserving the health and diversity of our forests, while meeting the demand for forest products. To achieve this balance, federal, provincial and territorial governments, woodlot owners, community forest partnerships, academic organizations, municipalities, multinational corporations, Aboriginal groups and others must be committed to responsible forest management.

Canada is viewed as a world leader in sustainability and in progressive, inclusive forest management. We are proud of our success and we need to ensure that Canadians know about these achievements.

This report is filled with exciting examples showing how Canada's forest sector is meeting economic, social and environmental goals. Whether it's using innovative management techniques that bring together First Nations organizations and private businesses to make wise resource decisions, finding new ways to promote mixed forest use, adopting new sustainable forestry practices or rejuvenating urban forests, our successes give the world a model of sustainability.

This year's Points of View section offers a variety of non-governmental opinions about sustainable forest management in Canada. These viewpoints are reflective of the domestic and global discussions surrounding Canada's advances in achieving sustainability within the forest sector. Although each of the interviewees recognizes Canada's continuing progress toward sustainable forestry, each also identifies either real or sometimes perceived impediments to continuing progress. One such identified impediment is the absence of an internationally accepted definition of sustainable forest management. Clearly, this is supportive of Canada's continuing quest for an international forest convention.

The State of Canada's Forests report reminds us that to lead we must innovate—creating new technologies, new products and new approaches to development. To build on our progress, we must strengthen the partnerships that are essential to the sector's success. We must join forces to demonstrate to Canadians and the world that sustainable forestry is an everyday way of doing business.

Ralph Goodale
Minister of Natural Resources Canada

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A scientist with [illegible] area. Collaborative [illegible] R&D Canada improves [illegible] nce techniques.

Up Front

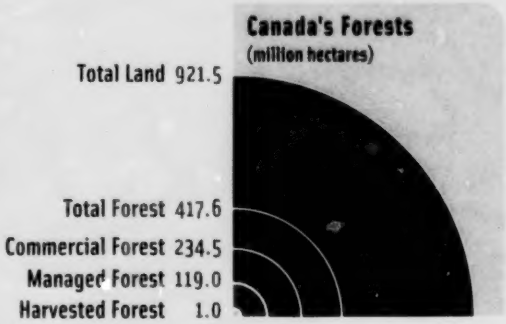
An Overview of Canada's Forests

Canada extends over 997 million hectares in total, of which 921.5 million hectares is land area. Temperate and boreal forests cover nearly half of Canada's land mass.

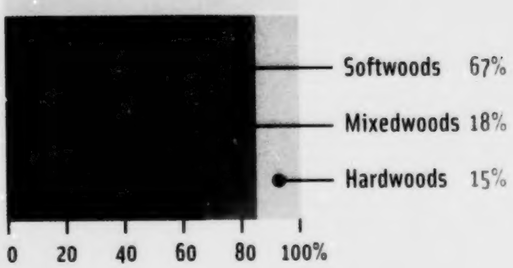
With about 10 percent of the world's forests and nearly 25 percent of the planet's fresh water (much of it in forested areas), Canada's forests play critical roles in moderating our climate and filtering our air and water, and offer a place of sanctuary and recreation. Forests provide diverse habitats for about two-thirds of Canada's estimated 140 000 species of plants (180 species of trees), animals, and micro-organisms.

There are 15 terrestrial ecozones within Canada, containing forest types ranging from the towering coastal rainforests in British Columbia to the sparse and slow-growing forests at the Arctic tree line (approximately 60 degrees North latitude). Based on age, approximately 18 percent of Canada's forests can be classified as "old growth". Based on whether the forest has ever been harvested, the percentage may reach 70 percent.

Of the 417.6 million hectares of forests in Canada, 234.5 million hectares are considered "commercial forests"—capable of producing commercial species of trees as well as other non-timber benefits. Currently, 119 million hectares of these commercial forests are managed primarily for timber production, while the remaining area has not been accessed or allocated for this purpose. Nineteen percent of Canada's commercial forest land is classified as being under "policy constraint". This area includes land that will not be harvested due to policy or legislative guidelines: land, for example, that serves as buffers along watercourses or is owned by or managed through agreements with conservation agencies. The non-commercial forest land (183.1 million hectares) is made up of open forests comprising natural areas of small trees, shrubs, and muskegs.

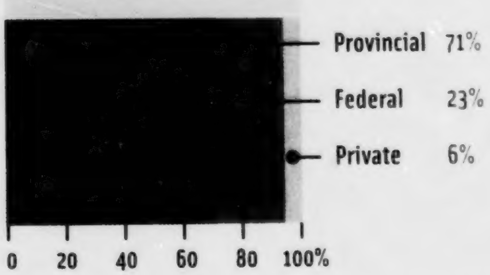


Canada's Forest Types



Roughly 0.4 percent, or about one million hectares, of Canada's commercial forests are harvested yearly. Each province/territory establishes Annual Allowable Cut levels (see pages 24-30), which are based on the average volume of wood which may be harvested under sustained yield management. More than half of the area harvested is left to regenerate naturally, usually after some form of preparatory site treatment. The remaining areas are seeded or planted. Roughly 0.5 percent of Canada's forests are affected by fire, insects, and disease each year (see page 24) and they are also left to regenerate naturally.

Forest Land Ownership



Canada is unique in that 94 percent of the nation's forests are publicly owned. Under the Canadian Constitution, the provinces have ownership and legislative authority over most publicly owned forest land—71 percent of the total forest land. The federal government's responsibility for forests is based on its ownership of 23 percent of Canada's total forest land, most of it in the territories. (The federal government devolved responsibility for management of forests within the Northwest Territories in 1986. A similar transfer is being finalized with the Yukon. Responsibility for the management of forests previously within the Northwest Territories, prior to the creation of Nunavut, was included in the 1999 agreement under which Nunavut was created. The federal government still owns this land.)

Six percent of Canada's forest land is owned by an estimated 425 000 individuals, families, communities, and forest companies. These privately owned forests, of which 80 percent are located east of Manitoba and mostly in the Maritime provinces, are generally productive and of high quality. These private forests are the source of 19 percent of Canada's industrial roundwood production (i.e., logs, bolts, and pulpwood), 77 percent of maple products, 79 percent of fuelwood and firewood, and virtually all of the nation's Christmas trees.

Today, each province and territory has its own legislation, regulations, standards, and programs through which it allocates forest harvesting rights and management responsibilities. In addition, many provinces and territories have legislation that requires public participation as part of the forest management planning and allocation processes. The broad spectrum of forest users—the public, forest industries, Aboriginal groups, and environmental organizations—are consulted to ensure that recreational, cultural, wildlife, and economic values are incorporated into forest management planning and decision making.

Canada's forests also play key roles in meeting the cultural, spiritual, and material needs of Aboriginal people. Approximately 80 percent of Aboriginal communities are located within the forest regions of this country, and roughly 1.4 million hectares of forest land located on Indian reserves is suitable for sustainable, consumptive resource use, such as timber, hunting, trapping, fishing, and gathering herbs and medicinal plants.

In 1995, roughly 7.6 percent, or 32 million hectares, of Canada's forests were located in protected areas. This was in addition to the forests protected by provincial policies and operational guidelines. Recent additions that have not yet been compiled nationally have significantly increased the area of protected forest (see pages 13-16).

A NATIONAL FOREST INFORMATION SYSTEM FOR CANADA

The Canadian Council of Forest Ministers (CCFM) recognizes that improving access to timely, accurate and authoritative information relating to Canada's forests is essential. In that regard, the CCFM has agreed to the establishment of a Steering Committee mandated to assess the relevance and feasibility of developing a National Forest Information System (NFIS). The NFIS is seen as a first step to enhancing Canada's ability to better assess the current state of the nation's forests and to meeting Canada's national and international obligations to report on forest sustainability.

Agreements between interested governments, and ultimately non-government parties, will need to be developed, to acquire and integrate the data needed for better analysis and reporting on Canada's forests. The forest-related economic, social and environmental information contained within the NFIS would be made available world-wide through the Internet.

The NFIS initiative is being undertaken through a multi-phased approach. Phase I, which began in the fall of 2000, is aimed at developing a governance model to address policy issues; clarifying the infrastructure of the Internet site; defining the information needed to better respond to Canada's commitments relating to sustainable forest management; and investigating opportunities for cooperation and coordination between government departments and agencies.

The Steering Committee report on Phase I, and a proposal for Phase II, will be presented at the CCFM annual meeting in September 2001.

Year in Review

2000-2001

Canada's forests and forest sector continued to garner national and international attention throughout 2000-2001. At home, there have been significant changes to provincial policies and legislation regarding the use and conservation of forest resources—Quebec having revised its forest legislation and British Columbia having achieved the United Nations' Food and Agriculture Organization's recommended objective of protecting 12 percent of its landbase. The Canada-United States Softwood Lumber Agreement expired earlier this year and much attention was devoted to the implications of that event and the possibilities for a successor arrangement. But despite the diversity of issues and achievements, common trends remained evident: public participation in decision making is increasing; partnerships are flourishing; and sustainability of the resource is the overarching consideration.

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With a view to improving visual landscapes and biodiversity protection, **British Columbia** has shifted its harvesting practices away from traditional clearcuts to clearcuts with reserves and other silviculture systems. Clearcuts with reserves leave individual or groups of trees in a cutblock to provide both habitat for wildlife and visual screening. Traditional clearcut harvesting has decreased from 87 percent in 1998-1999 to 60 percent of the total area harvested this past year and clearcuts with reserves increased from 3 000 to 66 000 hectares.

British Columbia is also trying to improve its regulatory framework for forest practices, which comes under its Forest Practices Code. Seven pilot projects are underway to test a range of different approaches to planning. These projects typically replace a number of operational plans (forest management plans prepared by forest companies licensed to operate on Crown lands) with a single results-based forest stewardship plan. This change in approach is intended to save both the government and licensees money by streamlining planning efforts to improve market adaptability, and to allow for forest management certification by improving public participation and environmental protection.

2000 **$4.3 billion**

NEW INVESTMENTS IN THE FOREST INDUSTRY

1999 $3.6 billion

Also in British Columbia, the Ministry of Forests has established an advisory council on forest certification that brings together a variety of stakeholders to advise on how certification can work to maximum benefit in British Columbia. (For more information on forest certification, see pages 78-79).

The cumulative impact of rapid industrial growth and farmland conversion in the boreal forest is being studied in **Alberta**. To assess these impacts, Alberta has created research partnerships between companies and universities. These partnership groups will also be undertaking related wetlands studies.

Alberta is also taking steps to improve its reforestation policies. To that end, the Reforestation Standards Science Council is drawing on a wide range of expertise in the fields of forest management and silviculture.

Partners in **Saskatchewan's** Prince Albert Model Forest approved a new Ecosystem-based Integrated Resource Management Plan to guide the management of the Model Forest's landbase and promote its long-term sustainability. This Plan brought together forest users and multiple levels of government, including four First Nations governments, as well as municipal, provincial and federal governments.

In **Manitoba**, the Department of Conservation continues to advance its sustainable development strategy. The central element of this strategy is the Consultation on Sustainable Development Implementation (COSDI) report, which makes recommendations on land use, resource allocation and environmental decision making. Also included in the strategy is the creation of an Aboriginal Resources Council to ensure the development of partnerships with the Aboriginal community. A broader advisory committee was established to provide advice on all matters relating to sustainable development.

The Ontario Forest Accord, which was developed under the Living Legacy initiative, called for an independent review of **Ontario's** 34 forest management guidelines. The independent review was completed and 80 recommendations were made and accepted. An action plan was developed to consolidate these 34 guidelines into six, which will cover landscape, stand, site-specific, tourism and recreation, and cultural heritage values, as well as silvicultural practices.

In February 2001, Ontario endorsed a Memorandum of Under-

XII WORLD FORESTRY CONGRESS

Canada has been chosen by the Food and Agriculture Organization (FAO) of the United Nations to host the XII World Forestry Congress. Held once every six years (the most recent having been hosted by Turkey in 1997) the Congress is the largest international forum in the field of forestry.

Over 5 000 participants are expected to gather for the XII World Forestry Congress in Québec City in 2003. As host country, Canada will be a focal point in forestry and will have the unique opportunity of being able to showcase, to representatives of governments, the public, non-governmental organizations and Aboriginal groups, the quality of forest management in Canada and to demonstrate that our forest policies and practices include the principles of sustainability.

Mr. Jean-Louis Kérouac has been nominated Secretary General for the XII World Forestry Congress. Actions are underway toward the creation of the organizing committee, the establishment of the organizational structure, and the promotion of the Congress in Canada and abroad. A theme for the upcoming Congress has been proposed and is under consideration by the FAO.

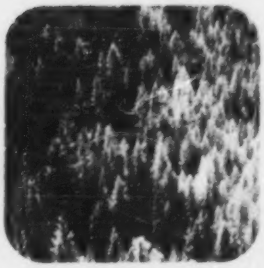
Further information on the XII World Forestry Congress is available at http://www.wfc2003.org

standing that signals a new era of cooperation between the tourism and forest industries in the province's north. Under the MOU, locally negotiated Resource Stewardship Agreements will provide assurance to resource-based tourism operators that tourism values which are important to their operations will be protected, and will also streamline planning associated with resource-based tourism. These agreements will also provide forest industries enhanced predictability of wood supply.

The Ontario legislature passed a new Professional Foresters Act, which came into effect in May 2001. The new Act recognizes the role of the Ontario Professional Foresters Association in regulating and governing the practice of professional forestry in Ontario. The Association will be responsible for licensing professional foresters, promoting, establishing and enforcing standards of professionalism among members, ensuring competency, providing continuing education, and enacting disciplinary measures for unprofessional conduct. The Association's counterpart in Nova Scotia, the Registered Professional Foresters Association, was proclaimed in February 2001.

Following a three-year revision process, which included public consultation at various steps, **Quebec** has passed a new Bill intended to improve the current forest management system in that province. The amendment to the Forestry Act is designed to increase the participation of Quebecers in the forest management process provide better protection of Quebec's forests, and improve forest management and operations planning.

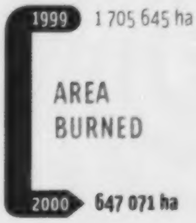
Also in Quebec, a group of forest engineers, geographers and cartographers have developed SIFORT, an information tool that provides rapid geographical and spatial representations of the province's forest lands. SIFORT is able to analyze an infinite range of data used for general forest management activities in Quebec.



New Brunswick developed an action plan that included legislative amendments, expanded monitoring initiatives and enhanced prevention measures to address, for example, growing public concern over wood theft on private and Crown lands.

Nova Scotia's Forest Sustainability Regulations became law in April 2000. These regulations are designed to ensure a sustainable timber supply on all private forest lands. Starting in 2001, all registered buyers who acquire 5 000 cubic metres or more of wood from private lands for processing or exporting from the province are affected by these regulations as they are now required to either carry out a silviculture program or contribute to the Sustainable Forestry Fund, which has been established to ensure that silvicultural work is carried out on private lands.

Nova Scotia has also proposed an integrated resource-management land-use strategy for provincial Crown (i.e., public) land. Such a strategy would be based on strategic planning designed to ensure a balance of diverse uses of land resources. Public sessions were held across the province in September 2000 to provide an opportunity for comment on this proposed strategy.



Province-wide consultations with the public, the forest sector and local communities were recently held in **Prince Edward Island** to exchange views on the management of Crown forest lands. In this same vein, Prince Edward Island proclaimed a Public Forest Council Act in April 2001. This Council will serve to encourage and facilitate, through community development initiatives, the development of non-consumptive and non-traditional products from public forest lands.

Prince Edward Island has also established a Forest Improvement Advisory Council and developed a Private Land Program to address the public's concerns about the impact of current softwood lumber harvests on private lands across the province. The advisory council provided the government with recommendations for the mandatory licensing of harvest contractors and the obligatory reporting of all harvest sites and wildlife management standards. Through the Private Land Program, resources and materials are being developed for the Woodlot Owner Education Initiative—an initiative to provide land owners with information to enable them to make informed harvest and management decisions for their forest lands.

Work has also begun on Prince Edward Island's Comprehensive Land Use Inventory with the upgrade of equipment and software, and the acquisition of high resolution aerial photography. This extensive inventory process will update the 1980 and 1990 forest inventories. The inventory will also provide benchmark data for a wide range of agriculture, urban, and natural resource considerations. A public report on the updated inventory and benchmark data is slated for release in 2002.

2000 373 326

DIRECT EMPLOYMENT

1999 352 000

And in the **Northwest Territories**, a classified satellite-based vegetation map of the forest land is scheduled for completion in March 2002. A composite image will be produced to allow northern forest managers to answer questions about the condition of the northern forest. The work is in its final data-gathering phase and will be subjected to analysis in the fall of 2001.

With a view to progressing toward sustainable forest management, the **Yukon's** amended Timber Regulations were put into effect in May 2001. Key provisions in the amended Regulations include: a market-driven system for collecting stumpage fees, reforestation, scaling and grading, tenure, security and forest protection. The amended Regulations have also increased the flexibility of the Yukon's timber permit issuing process.

In 2001, **British Columbia** became the first Canadian jurisdiction to achieve the United Nation's goal of protecting 12 percent of its landbase. British Columbia now has 12.95 percent of its landbase designated as parks, protected areas, recreation areas and ecological reserves.

Also in British Columbia, an agreement was reached between conservation groups, the forest industry, First Nations and the government regarding land use and forest management issues in a central coast area of the province. The area, which has recently acquired its now internationally recognized designation as the **Great Bear Rainforest**, has strong cultural significance to First Nations people, in particular, and is the habitat of a rare white subspecies of black bear known as the Spirit Bear. Under the agreement, 96 458 hectares have been protected to safeguard the region's unique environmental, cultural, tourism and resource values. A short-term economic package is being developed to soften the direct economic impact of these land-use changes. It is anticipated that government, the forest industry and the environmental community will share in the costs of longer-term community transition strategies.

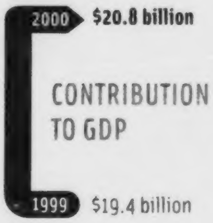
This past year **Alberta** created 24 new parks and protected areas, and expanded another six, contributing over 540 000 hectares to the province's network of parks and protected areas under the Special Places Program. Since the Program was established in March 1995, 76 new sites have been designated and 13 sites expanded, adding more than 1.2 million hectares of land to the province's parks and protected areas network. To date, approximately 11.4 percent of the province has been legislatively designated as parks and protected areas, including 5 national parks.

The **Saskatchewan** government is developing an action plan aimed at guiding biodiversity conservation efforts in that province over the next five years. To this end, Saskatchewan has made available for public comment a discussion paper entitled, *Conserving Saskatchewan's Natural Environment: Framework for a Saskatchewan Biodiversity Action Plan*. A steering committee has also been established to coordinate this initiative.

Saskatchewan has made strides in expanding its Representative Areas Network. Seven new ecologically important areas in the central and eastern regions of the province, totalling 121 000 hectares, have been added to the network. These sites, which are exempt from logging, mining and major road developments, ensure the conservation of wilderness areas in Saskatchewan and provide an environment for conducting ecosystem research. This addition brings the total area protected under the network since its inception to 1.7 million hectares.

Manitoba has released its action plan for the province's Network of Protected Areas. The three-year plan outlines new, broader goals that define the focus of the protected areas initiative, identifies target areas, and provides for the continued participation of First Nations in the establishment and management of new areas.

During the past year, Ontario's Rideau Waterway, Saint Mary's River and Thames River became part of the **Canadian Heritage River System** (CHRS). The CHRS recognizes rivers that are outstanding examples of Canada's natural heritage, that have played a role in Canadian history, and that offer significant opportunities for recreation. The Canadian Heritage River Board, which oversees the CHRS, has also approved Newfoundland's Main River designation (to be proclaimed shortly) and accepted the nomination of Hayes River, the largest river in Manitoba, to the CHRS. Over the next two years Manitoba intends to develop a management plan for the conservation of this river that will lead to its designation to the CHRS.



One year after its launch, **Ontario** has announced the expansion of the Living Legacy initiative—an initiative which serves to enhance the long-term protection of the province's natural environment. This expansion will provide funding for greater protection of species at risk, fish and wildlife as well as their habitats, and will support efforts to regulate the 378 new parks and protected areas created in Ontario in 2000. Additional support for resource-based tourism, and the implementation of youth programs and the Ontario Forest Accord, are also included in this expansion. Also, Ontario has taken action to protect and promote the Great Lakes Heritage Coast, which encompasses 2 900 kilometres of shoreline and is the centrepiece of the Living Legacy initiative.

In July 2000, **Quebec** announced a commitment to develop a strategy for protected areas in that province. The goal of the strategy is to increase their network of protected areas from the 1999 level of 2.8 percent to about eight percent of the Province's total area by 2005.

2000 ▸ 7.9 million tonnes
CONSUMPTION OF PAPER AND PAPERBOARD
1999 ▸ 7.7 million tonnes

New Brunswick has established 10 new protected areas, as part of its Protected Areas Strategy. Recreational activities, along with scientific research, will be encouraged in these new protected sites, which have a combined area of about 150 000 hectares.

And in **Nova Scotia**, the government and the **Nature Conservancy of Canada** formed a partnership in November 2000 to preserve ecological and natural areas in that province. The Campaign for Conservation is a three-year partnership that will result in the purchase and protection of ecologically significant lands in Nova Scotia. The government and the Nature Conservancy have worked together over the years on several projects, including the acquisition and protection of other ecologically significant areas. Currently, more than eight percent of Nova Scotia's landbase is protected (almost 300 000 hectares), which represents approximately 20 percent of the Crown land (i.e., public land).

LA MAURICIE, designated the Forest Capital of Canada for 2001, is a concrete example of the key role forests play in the development of Quebec's regions. The forest capital title has been awarded annually since 1979 by the Canadian Forestry Association and highlights the valuable role that forests play in the economic and environmental health of our communities. A forest capital is a 12-month celebration of historic community/forest relationships, with a focus on the future through public awareness and education on forest conservation. The Forest Capital for 2002 is Corner Brook, Newfoundland.

The United Nations has designated Mount Arrowsmith in British Columbia and Lac Saint-Pierre in Quebec "**world biosphere reserves**". Biosphere reserves are areas of terrestrial and coastal ecosystems that promote solutions to reconcile the conservation of biodiversity with its sustainable use and are internationally recognized within the United Nations Educational, Scientific and Cultural Organization (UNESCO) Man and the Biosphere program. As of March 2001, there were 393 biosphere reserves in 94 countries, 10 of which are located in Canada.

The Mount Arrowsmith biosphere reserve is located on the east coast of Vancouver. Despite continuous urban development pressures, the area still nurtures a range of unique species, including the endangered Vancouver Island marmot and remnants of the Douglas-fir ecosystem.

The Lac Saint-Pierre biosphere reserve includes a major waterway in an industrialized area. It is considered a unique ecosystem, important for migratory birds and essential for the protection of the biodiversity in Quebec and Canada.

In a study released in February 2001 at the World Economic Forum, Canada ranked third in the world behind Finland and Norway in the "**environmental sustainability index**". This new index, devised by researchers associated with Columbia University, Yale University and the World Economic Forum, compares environmental conditions and performance across countries.

2000 $37.5 billion

FOREST PRODUCTS' CONTRIBUTION TO BALANCE OF TRADE

1999 $35.4 billion

[illegible]

Manitoba has established a Sustainable Development Innovations Fund to provide support for projects aimed at reducing the impact of climate change. Over a four-year period, the fund will endorse projects related to education and outreach, impact and adaptation research, technological innovation and energy efficiency, as well as alternative forms of energy.

And in **Nunavut** a strategy to address energy management and impact/adaptation measures has been developed as part of the territory's climate change initiatives. This strategy is based in part on stakeholder consultation, collection of Inuit knowledge and testing renewable energy supply technology.

A major and prolonged **forest fire** that burned more than 150 000 hectares in the western United States resulted in a call for international fire fighting assistance during August and September 2000. Under the Canada/United States Reciprocal Forest Fire Fighting Agreement, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia and the Northwest Territories responded to the request by providing fire personnel (more than 1 300 Canadians) and equipment.

Last year some 647 000 hectares of forests were lost to fires in Canada.

Over the past year, a mountain pine beetle outbreak in the west-central plateau of **British Columbia** has increased fourfold, affecting slightly less than 300 000 hectares of forest in the area. This tiny black insect, native to North America, burrows into lodgepole pines and transmits blue stain fungi that can destroy the connective tissues within a tree and lower the grade of the lumber, which reduces its market value. Government and industry are investing in surveys, single-tree treatments, and redirection of timber harvests to infested areas in a bid to limit the spread of infestation and to salvage the threatened timber.

The same beetle has appeared in **Alberta**, affecting about 700 trees. Provincial and federal officials there are also establishing methods to control the beetles and to prevent increased infestation.

In **Nova Scotia**, efforts to eradicate the brown spruce longhorn beetle from the Halifax area have led to the removal and incineration of approximately 3 600 spruce trees during the past year. This is the first established population of this foreign pest discovered in North America. Following the confirmed identification of this beetle in 1999, a task force was created in Spring 2000 to address issues related to its eradication. The task force includes representatives from municipal, provincial and federal agencies, along with local academics and experts in forestry. A restricted wood movement zone has also been established around the city, making it illegal to transport any wood across city boundaries unless previously inspected. Intensive tree-by-tree surveys, monitoring, removal and incineration of infested spruce trees are ongoing in an attempt to eliminate this pest from North America.

Endangered Species

There is a long history of cooperation on species at risk among federal, provincial and territorial governments. Through the designation of protected areas, implementation of international wildlife agreements and a commitment to the conservation of biodiversity, governments continue to work together on many nature issues.

Following the federal elections in November 2000, the government re-introduced its federal endangered species legislation in the House of Commons in February 2001. Bill C-5, entitled the **Species at Risk Act** (SARA), was debated in the House during February and was then referred for review, in March 2001, to the House of Commons Standing Committee on Environment and Sustainable Development. Over the past year the federal government, in consultation with the provinces and stakeholders, has been active in developing a compensation policy that, upon completion, will guide development of compensation regulations governing loss of land use under the implementation of SARA.

2000 $47.4 billion

VALUE OF FOREST PRODUCTS EXPORTS

1999 $44.2 billion

In **Nova Scotia**, recovery plans are underway for nine of the 10 wildlife species protected under their new Endangered Species Act (a plan for the tenth species is being prepared). The 10 species listed include seven endangered, one threatened and two vulnerable species, all currently listed "at risk" nationally by the Committee on the Status of Endangered Species (COSEWIC). The new Act was proclaimed last year and is part of the province's national commitment to the protection of species at risk.

Nova Scotia also released, in April 2001, an Internet-based report and searchable Web site on the status of wildlife species. The report contains the general status information for 748 species of plants and animals found in the province, with a view to expanding reporting to 1 600 species by the end of this year.

Aboriginal Participation in Forestry

In March 2001, the **National Aboriginal Forestry Association** (NAFA) released an action plan to improve the capacity of Aboriginal communities in forestry. The plan focuses particularly on ways to increase the number of Aboriginal registered professional foresters (RPFs) in Canada. NAFA's goal is to have 500 Aboriginal RPFs join the forest sector within the next decade.

FIRST NATION FORESTRY PROGRAM: FIVE YEARS OF PROGRESS

Canada's First Nation Forestry Program (FNFP), initiated in 1996 for a period of five years, was a $24.9 million federal government program. In April 2001, the Program was extended for one year at a funding level of $4.5 million. Designed to improve the economic conditions in status Indian communities, with full consideration of the principles of sustainable forest management, the FNFP has been remarkably successful in creating opportunities for First Nations' workers and their communities.

The broad objectives of the FNFP have provided the flexibility necessary to support initiatives that best meet community needs while respecting varying regional forestry circumstances and needs of First Nations. For example, the FNFP recognizes that many First Nations are at different levels of developing their capacity to manage forests; that First Nations, in some regions, have relatively few, although large, forests, while other regions have many smaller forests; that provincial policies relating to First Nations' access to off-reserve forests differ widely; and, that the forest sector differs in scope and nature from region to region.

The FNFP is managed through a relatively new concept for federally sponsored programs. A National Management Committee and provincial and territorial committees were put in place to administer and deliver the Program. The National Management Committee has representation from First Nations, Indian and Northern Affairs Canada and Natural Resources Canada, and is accountable for the overall management of the Program. The provincial and territorial committees, composed of First Nations, Indian and Northern Affairs Canada and Natural Resources Canada, and in some cases provincial and territorial governments and the forest industry, approve projects and deliver the program at the regional level. By the last year of the program, over 80 First Nations representatives participated in these Provincial/Territorial Management Committees and it has become evident that such representation has helped advance First Nation forestry leadership in every region of Canada.

SUCCESS IS EVIDENT

Overall, during the first five years of the FNFP, 1 480 applications for project funding, valued at $152.4 million, were received. Of these, 966 projects valued at more than $70 million were supported. The FNFP contributed $21 million toward these projects while First Nations and their partners contributed $27 million and $22 million, respectively. These projects provided on-the-job training for 3 961 First Nations workers.

As an economic development program, communities are encouraged to investigate forestry business opportunities, prepare business plans and develop forest management plans. During the first five years of the FNFP, 72 feasibility studies, 99 business plans and 84 forest management plans were prepared. Many of these initiatives led to the establishment of a number of forestry-related companies and other employment activities that created a substantial number of part- and full-time jobs, both on and off reserve.

An important communication activity of the Program is capacity building through the development of forestry skills, knowledge and on-site training. In this regard, the FNFP supported 216 conferences, workshops, and training sessions to promote and encourage outreach activities. These activities gave participants the opportunity to learn from experts and exchange information and viewpoints, while networking with colleagues from across the country.

The one-year extension of the FNFP is allowing the continuation of longer-term projects while also permitting first-time entrants to become involved in initiatives that will allow them to explore forestry opportunities in and around their communities. Perhaps most importantly, the extension will support continued First Nations leadership that resulted during the first five years, thus fostering new opportunities for First Nations to become more involved in Canada's forest sector.

For more information on the First Nation Forestry Program visit http://www.fnfp.gc.ca

NAFA has also assisted in the implementation of the Aboriginal Junior Forest Rangers Program in northern Ontario. This program is a summer employment opportunity for Aboriginal youth aimed at extending capacity building in forestry to youth. Eighteen rangers, between the ages of 16 and 18, were introduced to the principles of sustainable forest management through tours, classroom instruction, labs and hands-on training in tree planting, thinning and other practical skills. NAFA is currently marketing this concept across the country to promote forestry education and awareness to Aboriginal youth and to create working relationships with industrial partners.

A recent agreement between the Innu Nation and **Newfoundland and Labrador** provides for the full participation of the Innu Nation in the management and sustainable development of Labrador's forest resources. The Innu Nation's involvement encompasses management planning, designing practices and prescriptions for ongoing operations, and exploring models for co-management of the resources.

In 2000, the **PICTOU LANDING FIRST NATION** received Forest Stewardship Council certification (FSC–see page 78) of their 384 hectare woodlot. According to the announcement made by the Pictou Landing First Nation, their woodlot was only the fifth certified woodlot in Canada–the first to be certified in Nova Scotia–and at that time was the only Native-owned woodlot in Canada to have been certified. In 1999, the Pictou Landing First Nation completed a new forest management plan that provides the blueprint for the sustainable development of the woodlot. Their long-term goal is to restore the woodlot to pre-colonization conditions. These efforts resulted in certification by the FSC as a sustainable forest that is properly managed from a social, economic and environmental perspective.

Communication and Innovation

In February 2001, the former Canadian Pulp and Paper Association changed its name to the **Forest Products Association of Canada** (FPAC). This name change will better enable Canada's forest industry to speak with a more united voice on national and international issues, including public policy, communications, environment, and sustainable forest management. FPAC will represent members that include makers of pulp, paper and wood products across Canada who currently have annual revenues of at least $60 billion. The new association will play a key role in promoting Canada's forest policy and forest management practices around the world.

Hundreds of Canadian and US wood companies and their allied associations have banded together under the umbrella of the **Wood Promotion Network**. These companies and associations employ an unprecedented and powerful voice to enhance the reputation of wood among builders, retailers and consumers, in North America. The three-year, US$45 million marketing and education campaign aims to reinforce the virtues of wood as a superior building material. A parallel effort focuses on raising awareness of the growth, abundance and sustainability of the forest resource.

UNITED NATIONS FORUM ON FORESTS

Following the United Nations Conference on Environment and Development (UNCED) in 1992, the international forest policy dialogue resumed in the United Nations with the establishment of the Intergovernmental Panel on Forests (IPF) in 1995 and, subsequently, at the Intergovernmental Forum on Forests (IFF) in 1997. Discussions resulted in more than 250 proposals for action that countries and international organizations committed themselves to implement to improve sustainable forest management at national, regional and global levels. However, during final deliberations at the IFF in February 2000, agreement could not be reached to launch negotiations for a legally binding framework for forests.

Recognizing the need for further deliberations, the Economic and Social Council of the United Nations established the United Nations Forum on Forests (UNFF) in October 2000. Over the next five years, the UNFF will, among other tasks, facilitate the implementation of the IPF/IFF proposals, enhance international coordination and cooperation in addressing forest issues and strengthen political commitment for sustainable forest management worldwide. The UNFF will also consider the parameters of a mandate for developing a legal framework on all types of forests and devise approaches toward financial and technology transfer support to implement sustainable forest management. The UNFF's first substantive session is scheduled for June 2001, when it is expected to adopt a multi-year program of work and develop a plan of action to implement IPF/IFF proposals.

Additional information on past and current forest discussions in the United Nations can be found at http://www.un.org/esa/sustdev/forests.htm

Forintek Canada Corp. has been active in securing a foothold in China for Canada's wood industry. Forintek, Canada's applied research institute for the solid wood products industry, participated in the revision of China's Timber Structural Design Code (building code). This information will, for the first time, allow Chinese design professionals to use Canadian woods in structural applications. China is expected to build over five billion square feet of residential housing annually for the next 20 years. The Chinese government is particularly interested in energy-saving, low-environmental impact materials as a substitute for traditional concrete and bricks.

FERIC, the Forest Engineering Research Institute of Canada, celebrated 25 years in 2000 with the launch of a book, which showcases 25 of the most successful projects it has accomplished over this period. FERIC is a private, non-profit research and development organization whose goal is to improve Canadian forestry operations related to the harvesting and transportation of wood, and the growing of trees, within a framework of sustainable development. Over the past 25 years, FERIC has undertaken more than 1 000 research projects.

The year 2000 also marked the 75th anniversary of the **Pulp and Paper Research Institute of Canada** (Paprican). A number of special events were held to commemorate this milestone in the Institute's history. Paprican's mission is to enhance the technical competitiveness of its member pulp and paper companies through research and educational activities.

2000 **3.4 million tonnes**

RECOVERY
OF WASTE
PAPER

1999 3.2 million tonnes

Indications are that the much anticipated growth in **forestry e-business** has been slow to take off in Canada. A recent e-commerce study stated that although some forest companies are becoming more knowledgeable about the Internet, only 32.8 percent of the enterprises use the Internet and only 5.7 percent of the industry has corporate Web sites on which they advertise themselves and their products. This same study asserted that only 1.1 percent of Canada's forest industries are investing in the global business-to-business electronic marketplace.

The **Canada Research Chairs Program** announced last year has the goal of creating 2 000 new research Chairs across Canada by 2005. It is administered by the three federal granting councils, the Medical Research Council (MRC), the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Social Sciences and Humanities Research Council (SSHRC), along with the Canada Foundation for Innovation (CFI) and Industry Canada.

Under the program, two of these newly created Chairs are assigned to the Faculty of Forestry and Geomatics at Laval University in Quebec. One is a Chair in forestry and environmental genomics, under the banner "protecting and building the forest", and another is a new Chair in geomatics, titled "Cognitive geomatics–Spatial reference at a crossroads". A third industrial Chair was created by the faculty, in collaboration with Forintek Canada Corp., NSERC and industry.

MERGERS AND ACQUISITIONS IN THE FOREST SECTOR

2000-2001

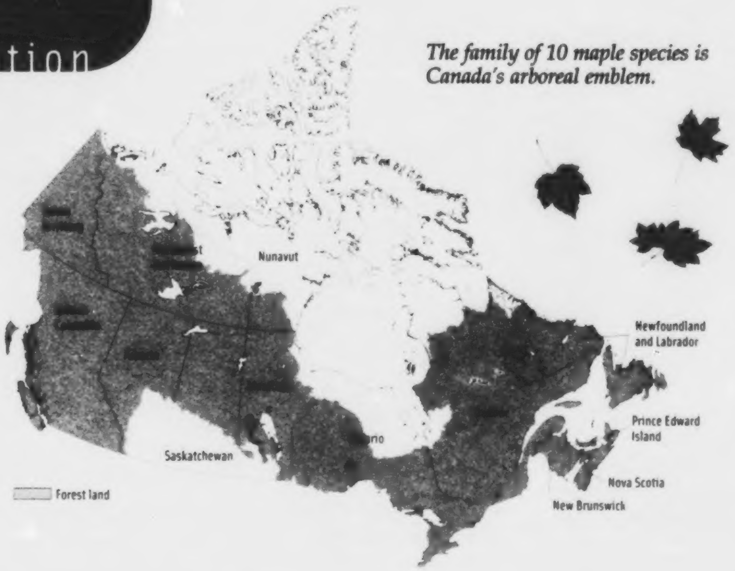
As reported in *The State of Canada's Forests 1999-2000*, the first half of that year was unprecedented with regard to corporate mergers and takeovers within the Canadian forest sector. Consolidation was the trend. That trend continued into 2000-2001, as shown in the following table, but at a slower pace and with less financially dramatic manoeuvres.

Industry analysts have suggested that the reduced pace of mergers and acquisitions within Canada's forest sector in later 2000 and into 2001 are the result of a variety of factors: as a result of their major acquisitions completed in 1999-2000, the industry required some time adapt to these new arrangements and to integrate their newly acquired capacities; drops in value of industry-related stocks, from the highs of early spring 2000 to the lows of the fall that same year, have resulted in mergers and acquisitions being less advantageous and self-investment (by buying back their own stocks at their lower values) the better strategy; and factors such as the expiration of the Softwood Lumber Agreement between Canada and the United States, as well as anticipated downturns in the United States' economy and its effects on their housing starts, were cause for the Canadian forest sector to pause and adopt a 'wait and see' attitude.

Some forest sector analysts are predicting that mergers and acquisitions within Canada's forest industries are not yet complete. However, these analysts generally agree that future activity will likely not be as aggressive or involve as much money as experienced in 1999-2000. One explanation for the predicted slowdown in activity is simply that the number of big Canadian forestry companies still available for acquisition or mergers is now very limited, given last year's activity. Experts further suggest that there will be mainly mid- to smaller-sized companies involved in the next round of activity.

DATE	INITIATING COMPANY		AFFECTED COMPANY	ACTION	FINANCES	DETAILS OF ACTIONS
March '00	Olsen Management Group	>	West Fraser Timber Co. Vancouver, BC	Sale	Undisclosed	North coast of BC forest licence
June '00	Weyerhaeuser Inc. United States	>	Coast Mountain Hardwood Delta, BC	Sale	Undisclosed	BC: 1 hardwood lumber mill
July '00	Nexfor Inc. Toronto, ON	>	Juniper Lumber Company Ltd. Miramichi, NB	Sale	Undisclosed	NB: 1 I-joist plant
Aug. '00	UPM-Kymmene Finland	>	Repap Entreprises Inc. Prince George, BC	Sale	$160 million	NB: 1 fine paper mill 2 sawmills
Sept. '00	Tembec Inc. Montréal, QC	>	La Société La Rochette France	Sale	$155 million	France: 2 Kraft pulp mills
Oct. '00	West Fraser Timber Co. Vancouver, BC	>	Plum Creek Timber Company United States	Sale	$60 million (US)	US: 2 sawmills
Feb. '01	West Fraser Timber Co. Vancouver, BC	>	Ainsworth Lumber Co. Ltd. Coquitlam, BC	Sale	$22 million	BC: 1 sawmill - Chasm
March '01	Tembec Inc. Montréal, QC	>	Excel Forest Products Ltd. United Kingdom	Sale	$12 million	ON: 1 sawmill - Opasatika
	(This represents the purchase of a 50% interest in Excel Forest Products Ltd.)					
March '01	Interfor Vancouver, BC	>	Primex Forest Products Inc. Delta, BC	Sale subject to regulatory approval	$110 million as of April '01	BC: 2 sawmills Interests in 3 lumber remanufacturing mills
March '01	Norske Skog Canada Ltd. Vancouver, BC	>	Pacifica Papers Inc. Vancouver, BC	Sale subject to regulatory approval	$1.5 billion	BC: 2 paper mills producing lightweight coated paper, telephone directory paper and newsprint
March '01	Pope & Talbot, Inc. Portland, OR	>	Norske Skog Canada Ltd. Vancouver, BC	Sale subject to regulatory approval	$163 million	BC: 1 pulp mill
April '01	Bowater Inc. Greenville, SC	>	Alliance Forest Products Inc. Montréal, QC	Sale subject to regulatory approval	$1.2 billion	QC: 2 fine paper mills 8 sawmills NB: 1 sawmill US: 1 newsprint mill 1 sawmill
June '01	Georgia-Pacific Corp. Atlanta, GA	>	Domtar, Inc. Montréal, QC	Sale subject to regulatory approval	$2.5 billion	US: 4 fine paper mills

Profiles
Across the Nation



The family of 10 maple species is Canada's arboreal emblem.

CANADA

Population (2000)	30.9 million
Total area	997.0 million ha
Land area	921.5 million ha
Forest land	417.6 million ha
National parks	24.5 million ha
Provincial parks	24.5 million ha

FOREST RESOURCE

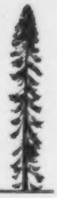
Ownership	
Provincial	71%
Federal	23%
Private	6%
Forest type	
Softwood	67%
Mixedwood	18%
Hardwood	15%
Annual allowable cut (1998)[a]	232.8 million m³
Harvest (volume) – industrial roundwood (1998)[b]	176.6 million m³
Harvest (area) (1998)	1.08 million ha
Status of harvested Crown land (1998)[c]	
Stocked (86%)	13.9 million ha
Understocked (14%)	2.3 million ha
Area defoliated by insects (1999)[d]	6.3 million ha
Area burned (2000)[e]	647 071 ha

FOREST INDUSTRY

Value of exports (2000)	$47.4 billion
Softwood lumber	24%
Other paper and paperboard	22%
Wood pulp	21%
Newsprint	15%
Waferboard	4%
Major export markets (2000)	
United States	77%
European Union	8%
Japan	7%
Others	8%
Balance of trade (2000)	$37.5 billion
Contribution to GDP (2000)	$20.8 billion
Value of shipments (1997)	$69.6 billion
Exported	56%
Sold domestically	44%
Number of establishments (1997)	12 630
Logging	8 920
Wood (1998)	2 326
Paper and allied (1998)	669
Direct jobs (2000)	373 326
Wages and salaries (1997)	$11.8 billion
New investments (2000)	$4.3 billion

a, b, c, d, e see page 31

NEWFOUNDLAND AND LABRADOR



BLACK SPRUCE (*Picea mariana*)

Population	538 823
Total area	40.6 million ha
Land area	37.2 million ha
Forest land	22.5 million ha
Provincial parks	439 400 ha

FOREST RESOURCE

Ownership		
Provincial*		99%
Private		1%
Forest type		
Softwood		91%
Mixedwood		8%
Hardwood		1%
Annual allowable cut (1998)[a]		2.7 million m^3
Harvest (volume) (1998)[b]		2.4 million m^3
Harvest (area) (1998)		17 414 ha
Status of harvested Crown land (1998)[c]		
Stocked	(80%)	293 000 ha
Understocked	(20%)	72 000 ha
Area defoliated by insects (1999)[d]		35 121 ha
Area burned (2000)		148 820 ha

FOREST INDUSTRY

Value of exports (2000)	$684.8 million
Newsprint	95%
Softwood lumber	4%
Major export markets (2000)	
United States	57%
European Union	24%
South and Central America	13%
Other countries	6%
Balance of trade (2000)	$666.6 million
Value of shipments (1997)	$710.0 million
Number of establishments (1997)	158
Logging	103
Wood (1998)	42
Paper and allied (1998)	8
Direct jobs (2000)	4 121
Wages and salaries (1997)	$114.0 million
New investments (2000)	not available

Timber and property rights for 69% of the Crown land on the island of Newfoundland has been conveyed to pulp and paper companies through 99 year licences issued under the 1905 Pulp and Paper Manufacturing Act and 1935 Bowater Act. Therefore, the Province's financial and legal system treats this licensed land as private property.

PRINCE EDWARD ISLAND

RED OAK (*Quercus rubra*)

Population	138 928
Total area	0.57 million ha
Land area	0.57 million ha
Forest land	0.29 million ha
Provincial parks	1 500 ha

FOREST RESOURCE

Ownership		
Provincial		7%
Federal		1%
Private		92%
Forest type		
Softwood		35%
Mixedwood		35%
Hardwood		30%
Annual allowable cut (1999)[a]		0.5 million m^3
Harvest (volume) (1999)[b]		0.5 million m^3
Harvest (area) (1999)		5 780 ha
Status of harvested Crown land (1997)[c]		
Stocked	(72%)	24 600 ha
Understocked	(28%)	9 400 ha
Area defoliated by insects (1999)[d]		0
Area burned (2000)		29 ha

FOREST INDUSTRY

Value of exports (2000)	$17.9 million
Softwood lumber	87%
Other paper and paperboard	9%
Major export markets (2000)	
United States	99%
Other countries	1%
Balance of trade (2000)	$17.6 million
Value of shipments (1997)	$44.0 million
Number of establishments (1997)	32
Logging	17
Wood (1998)	10
Paper and allied (1998)	4
Direct jobs (2000)	546
Wages and salaries (1997)	$8.0 million
New investments (2000)	not available

NOVA SCOTIA

RED SPRUCE (*Picea rubens*)

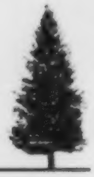
Population	940 996
Total area	5.6 million ha
Land area	5.3 million ha
Forest land	3.9 million ha
Provincial parks	30 507 ha

FOREST RESOURCE

Ownership	
Provincial	28%
Federal	3%
Private	69%
Forest type	
Softwood	45%
Mixedwood	22%
Hardwood	33%
Annual allowable cut (1998)[a]	6.7 million m^3
Harvest (volume) (1998)[b]	5.9 million m^3
Harvest (area) (1999)	49 680 ha
Status of harvested Crown land (1998)[c]	
Stocked (97%)	185 000 ha
Understocked (3%)	6 700 ha
Area defoliated by insects (1999)[d]	49 866 ha
Area burned (2000)	488 ha

FOREST INDUSTRY

Value of exports (2000)	$1.1 billion
Newsprint	26%
Wood pulp	23%
Softwood lumber	22%
Other paper and paperboard	23%
Major export markets (2000)	
United States	70%
European Union	13%
Central and South America	11%
Other countries	6%
Balance of trade (2000)	$1.1 billion
Value of shipments (1997)	$1.2 billion
Number of establishments (1997)	512
Logging	418
Wood (1998)	74
Paper and allied (1998)	11
Direct jobs (2000)	10 794
Wages and salaries (1997)	$244.0 million
New investments (2000)	not available



NEW BRUNSWICK

BALSAM FIR (*Abies balsamea*)

Population	756 598
Total area	7.3 million ha
Land area	7.2 million ha
Forest land	6.1 million ha
Provincial parks	24 900 ha

FOREST RESOURCE

Ownership	
Provincial	48%
Federal	1%
Private	51%
Forest type	
Softwood	47%
Mixedwood	29%
Hardwood	24%
Annual allowable cut (1998)[a]	11.0 million m^3
Harvest (volume) (1998)[b]	11.5 million m^3
Harvest (area) (1998)	111 568 ha
Status of harvested Crown land (1998)[c]	
Stocked (96%)	510 000 ha
Understocked (4%)	22 000 ha
Area defoliated by insects (1999)[d]	59 274 ha
Area burned (2000)	336 ha

FOREST INDUSTRY

Value of exports (2000)	$2.9 billion
Other paper and paperboard	30%
Softwood lumber	23%
Wood pulp	23%
Newsprint	12%
Major export markets (2000)	
United States	83%
European Union	7%
Japan	4%
Central and South America	2%
Other countries	4%
Balance of trade (2000)	$2.6 billion
Value of shipments (1997)	$3.7 billion
Number of establishments (1997)	1 015
Logging	855
Wood (1998)	123
Paper and allied (1998)	24
Direct jobs (2000)	20 006
Wages and salaries (1997)	$530.0 million
New investments (2000)	not available

QUEBEC

YELLOW BIRCH (*Betula alleghaniensis Britton*)

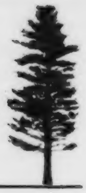
Population	7.4 million
Total area	154.1 million ha
Land area	135.7 million ha
Forest land	83.9 million ha
Provincial parks	7.1 million ha

FOREST RESOURCE

Ownership		
Provincial		89%
Private		11%
Forest type		
Softwood		58%
Mixedwood		23%
Hardwood		19%
Annual allowable cut (1999)[a]		58.0 million m^3
Harvest (volume) (1999)[b]		45.5 million m^3
Harvest (area) (1999)		382 538 ha
Status of harvested Crown land (1998)[c]		
Stocked	(94%)	4.9 million ha
Understocked	(6%)	323 000 ha
Area defoliated by insects (2000)[d]		478 875 ha
Area burned (2000)		39 205 ha

FOREST INDUSTRY

Value of exports (2000)	$12.2 billion
Newsprint	25%
Other paper and paperboard	31%
Softwood lumber	15%
Wood pulp	9%
Major export markets (2000)	
United States	87%
European Union	7%
Other countries	6%
Balance of trade (2000)	$10.4 billion
Value of shipments (1997)	$18.7 billion
Number of establishments (1997)	2 976
Logging	1 714
Wood (1998)	722
Paper and allied (1998)	198
Direct jobs (2000)	108 916
Wages and salaries (1997)	$3.2 billion
New investments (1999)	$1.3 billion



ONTARIO

EASTERN WHITE PINE (*Pinus strobus*)

Population	11.7 million
Total area	106.9 million ha
Land area	89.1 million ha
Forest land	58.0 million ha
Provincial parks	7.0 million ha

FOREST RESOURCE

Ownership		
Provincial		88%
Federal		1%
Private		11%
Forest type		
Softwood		50%
Mixedwood		27%
Hardwood		23%
Annual allowable cut (1999)[a]		0.4 million ha
Harvest (volume) (1999)[b]		24.8 million m^3
Harvest (area) (1999)		201 522 ha
Status of harvested Crown land (1999)[c]		
Stocked	(87%)	3.9 million ha
Understocked	(13%)	577 000 ha
Area defoliated by insects (2000)[d]		7.3 million ha
Area burned (2000)		6 633 ha

FOREST INDUSTRY

Value of exports (2000)	$9.7 billion
Other paper and paperboard	38%
Newsprint	17%
Wood pulp	14%
Softwood lumber	9%
Waferboard	6%
Major export markets (2000)	
United States	97%
Other countries	3%
Balance of trade (2000)	$3.9 billion
Value of shipments (1997)	$15.5 billion
Number of establishments (1997)	2 750
Logging	1 756
Wood (1998)	525
Paper and allied (1998)	308
Direct jobs (2000)	88 473
Wages and salaries (1997)	$2.8 billion
New investments (2000)	$0.9 billion

MANITOBA

WHITE SPRUCE (*Picea glauca*)

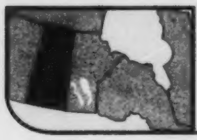
Population	1.1 million
Total area	65.0 million ha
Land area	54.8 million ha
Forest land	26.3 million ha
Provincial parks	1.5 million ha

FOREST RESOURCE

Ownership		
Provincial		94%
Federal		1%
Private		5%
Forest type		
Softwood		59%
Mixedwood		20%
Hardwood		21%
Annual allowable cut (1998)[a]		9.7 million m^3
Harvest (volume) (1999)[b]		2.2 million m^3
Harvest (area) (1999)		15 509 ha
Status of harvested Crown land (1999)[c]		
Stocked	(94%)	277 000 ha
Understocked	(6%)	17 000 ha
Area defoliated by insects (1998)[d]		181 614 ha
Area burned (2000)		86 129 ha

FOREST INDUSTRY

Value of exports (2000)	$659.2 million
Other paper and paperboard	25%
Newsprint	18%
Softwood lumber	21%
Waferboard	12%
Major export markets (2000)	
United States	93%
European Union	1%
Other countries	6%
Balance of trade (2000)	$289.1 million
Value of shipments (1997)	$918.0 million
Number of establishments (1997)	248
Logging	164
Wood (1998)	51
Paper and allied (1998)	22
Direct jobs (2000)	8 973
Wages and salaries (1997)	$189.0 million
New investments (2000)	not available



SASKATCHEWAN

WHITE BIRCH (*Betula papyrifera*)

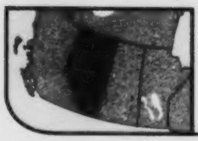
Population	1.0 million
Total area	65.2 million ha
Land area	57.1 million ha
Forest land	28.8 million ha
Provincial parks	1.2 million ha

FOREST RESOURCE

Ownership		
Provincial		97%
Federal		2%
Private		1%
Forest type		
Softwood		39%
Mixedwood		25%
Hardwood		36%
Annual allowable cut (1998)[a]		7.6 million m^3
Harvest (volume) (1998)[b]		3.3 million m^3
Harvest (area) (1998)		21 169 ha
Status of harvested Crown land (1997)[c]		
Stocked	(36%)	150 000 ha
Understocked	(64%)	269 000 ha
Area defoliated by insects (1999)[d]		506 749 ha
Area burned (2000)		140 922 ha

FOREST INDUSTRY

Value of exports (2000)	$887.8 million
Wood pulp	43%
Other paper and paperboard	30%
Softwood lumber	21%
Waferboard	4%
Major export markets (2000)	
United States	71%
European Union	11%
Japan	4%
Central and South America	2%
Other countries	12%
Balance of trade (2000)	$791.9 million
Value of shipments (1997)	$947.0 million
Number of establishments (1997)	251
Logging	191
Wood (1998)	42
Paper and allied (1998)	5
Direct jobs (2000)	5 581
Wages and salaries (1997)	$166.0 million
New investments (2000)	not available



ALBERTA

LODGEPOLE PINE *(Pinus contorta)*

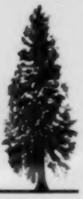
Population	3.0 million
Total area	66.1 million ha
Land area	64.4 million ha
Forest land	38.2 million ha
Provincial parks	1.3 million ha

FOREST RESOURCE

Ownership		
Provincial		87%
Federal		9%
Private		4%
Forest type		
Softwood		44%
Mixedwood		23%
Hardwood		33%
Annual allowable cut (1999)[a]		24.8 million m^3
Harvest (volume) (1999)[b]		19.4 million m^3
Harvest (area) (1999)		42 210 ha
Status of harvested Crown land (1999)[c]		
Stocked	(67%)	662 000 ha
Understocked	(33%)	332 000 ha
Area defoliated by insects (2000)[d]		481 428 ha
Area burned (2000)		14 676 ha

FOREST INDUSTRY

Value of exports (2000)	$3.2 billion
Wood pulp	52%
Softwood lumber	21%
Waferboard	12%
Newsprint	4%
Major export markets (2000)	
United States	66%
Japan	12%
European Union	10%
Other countries	12%
Balance of trade (2000)	$3.0 billion
Value of shipments (1997)	$4.4 billion
Number of establishments (1997)	548
Logging	323
Wood (1998)	153
Paper and allied (1998)	29
Direct jobs (2000)	24 499
Wages and salaries (1997)	$704.0 million
New investments (2000)	$0.5 billion



BRITISH COLUMBIA

WESTERN RED CEDAR *(Thuya plicata)*

Population	4.1 million
Total area	94.8 million ha
Land area	93.0 million ha
Forest land	60.6 million ha
Provincial parks	11.3 million ha

FOREST RESOURCE

Ownership		
Provincial		95%
Federal		1%
Private		4%
Forest type		
Softwood		89%
Mixedwood		8%
Hardwood		3%
Annual allowable cut (1999)[a]		70.6 million m^3
Harvest (volume) (2000)[b]		75.0 million m^3
Harvest (area) (1999)		176 312 ha
Status of harvested Crown land (1998)[c]		
Stocked	(82%)	3.2 million ha
Understocked	(18%)	715 000 ha
Area defoliated by insects (1999)[d]		not available
Area burned (2000)		16 830 ha

FOREST INDUSTRY

Value of exports (2000)	$16.0 billion
Softwood lumber	43%
Wood pulp	28%
Other paper and paperboard	9%
Newsprint	5%
Major export markets (2000)	
United States	58%
Japan	18%
European Union	12%
Other countries	12%
Balance of trade (2000)	$14.8 billion
Value of shipments (1997)	$23.5 billion
Number of establishments (1997)	4 140
Logging	3 379
Wood (1998)	584
Paper and allied (1998)	60
Direct jobs (2000)	101 417
Wages and salaries (1997)	$3.9 billion
New investments (2000)	$0.7 billion

YUKON TERRITORY

The Yukon Territory does not have an arboreal emblem.

Population	30 663
Total area	48.3 million ha
Land area	47.9 million ha
Forest land	27.5 million ha

FOREST RESOURCE

Ownership	
Federal	100%
Forest type	
Softwood	79%
Mixedwood	19%
Hardwood	2%
Annual allowable cut (1999)[a]	352 200 m^3
Harvest (volume) (1999)[b]	253 326 m^3
Harvest (area) (1999)	1 034 ha
Status of harvested Crown land (1998)[c]	
Understocked (69%)	7 200 ha
Stocked (31%)	3 300 ha
Area defoliated by insects (1999)[d]	not available
Area burned (2000)	7 651 ha

FOREST INDUSTRY

Value of exports (2000)	$11.9 million
Softwood lumber	94%
Major export markets (2000)	
United States	100%
Balance of trade (2000)	$11.9 million

NUNAVUT

Nunavut does not have an arboreal emblem.

Population	27 692
Total area	199.4 million ha

FOREST INDUSTRY

Value of exports (1999)	$92 784
Softwood lumber	100%
Major export markets (1999)	
United States	100%

NORTHWEST TERRITORIES

JACK PINE *(Pinus banksiana)*

Population	42 083
Total area	342.6 million ha
Land area	329.3 million ha
Forest land	61.4 million ha

FOREST RESOURCE

Ownership	
Federal	100%
Forest type	
Softwood	33%
Mixedwood	58%
Hardwood	9%
Annual allowable cut (1998)[a]	236 500 m^3
Harvest (volume) (1999)[b]	71 271 m^3
Harvest (area) (1998)	547 ha
Status of harvested Crown land (1993)[c]	
Understocked (85%)	2 600 ha
Stocked (15%)	440 ha
Area defoliated by insects (1999)[d]	487 556 ha
Area burned (2000)	177 814 ha

FOREST INDUSTRY

Value of exports (2000)	$4.4 million
Softwood lumber	96%
Major export markets (2000)	
United States	100%
Balance of trade (2000)	$4.4 million

Notes

Data Sources

The main sources for the data are Statistics Canada, Environment Canada, the Forest Products Association of Canada, Natural Resources Canada–Canadian Forest Service, the National Forestry Database and the Canadian Interagency Forest Fire Centre. Most of the information for the National Forestry Database was collected by provincial and territorial natural resource ministries. At the time of publication, data were preliminary. As data are finalized, they will be made available on the Internet in the National Forestry Database (http://nfdp.ccfm.org).

Arboreal Emblem

An illustration of the tree species that has been designated or officially adopted as the arboreal emblem of Canada and of each province and territory is included in the profiles on the preceding pages. The Yukon Territory and Nunavut do not have arboreal emblems.

Forest Land

The data regarding Canada's forest land are based on Canada's Forest Inventory 1991 (revised 1994). The map on page 24 shows the forest land boundary.

Forest Resource

Ownership data are provided for the total forest land.

[a] Annual allowable cut: The level of harvest set by the provinces and territories for a year is called the "annual allowable cut" (AAC). AAC figures include data for both softwoods and hardwoods. The AAC figures for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec and Manitoba include federal, provincial and private lands. Given the differences outlined below, a national AAC cannot be calculated by simply adding the provincial and territorial AACs.

- The national AAC figure that appears on page 24 was arrived at by estimating some data for private and federal lands, and converting the Ontario area figures into volume figures.
- Ontario provides figures for AAC (which it refers to as the "maximum allowable depletion") in hectares only.
- Saskatchewan, Alberta and Ontario do not include figures for private lands in their AACs.
- British Columbia does not include all private lands in its AAC.

[b] Harvesting: The national and provincial figures for harvesting volume include data for industrial roundwood only. The harvest level for fuelwood or firewood for a single province may range as high as 2.2 million m^3, and is not included in these harvest figures.

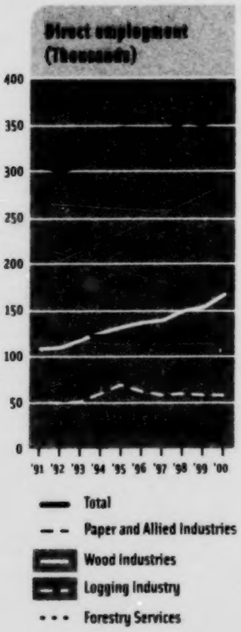
- Although the AAC for British Columbia does not include all private lands, these lands are included in the harvest figure. The yearly harvest rate for British Columbia may fluctuate, and in some cases, it may exceed the AAC. Over a five-year period, however, the harvest figure would be equal to or lower than the AAC.

[c] Status of harvested Crown land: These data reflect the cumulative area harvested since 1975. Data for private lands are not included. The term "stocked" refers to land where the forest cover meets certain timber-production standards established by forest management agencies in each province and territory. The term "understocked" refers to harvested land that requires silviculture treatments, such as site preparation, planting, seeding or weeding, to meet established standards. This category also includes land that has not yet been surveyed. A significant proportion of recently harvested areas will always be reported as understocked because of the time lag between harvesting and observable results of subsequent treatments. The small percentage of the area harvested each year that is devoted to access roads is not included in these data.

[d] Insect defoliation: The data relating to insects were provided by provincial and territorial agencies, and they include moderate-to-severe defoliation only. Defoliation does not always imply mortality; for example, stands with moderate defoliation often recover and may not lose much growth. Also, defoliation is mapped on an insect species basis, and a given area may be afflicted by more than one insect at a time. This may result in double or triple counting in areas affected by more than one insect, exaggerating the extent of the total area defoliated.

[e] All "Area burned" figures are from the Canadian Interagency Forest Fire Centre. Area burned includes areas within National Parks.

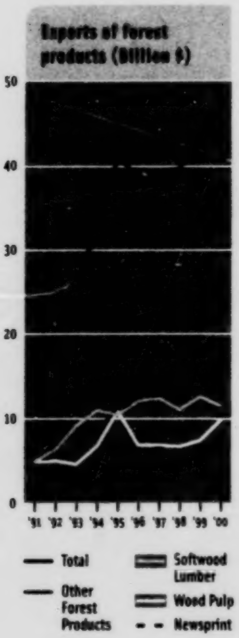
Forest **Statistics***



Direct Employment (2000)

Employment in the forest sector grew by more than 20 000 person-years between 1999 and 2000. This expansion was driven by the wood products sector, which generated nearly 14 000 new jobs. Forestry services, which consist of activities relating to forest management and protection, also experienced substantial growth. Employment in the paper and logging sectors remained generally stable. Over the past decade, employment in the wood products sector increased by 59 000 person-years.

2000	**Person-years**	**Annual change**	
		1 year	10 years
Total	373 300	6.1%	1.9%
Wood industries	167 700	8.9%	4.4%
Paper and allied industries	116 400	-1.0%	-1.1%
Logging industry	58 200	-0.4%	1.4%
Forestry services	31 000	40.4%	3.9%



Exports of Forest Products (2000)

With the help of a dollar that was considerably weaker than its United States counterpart, exports of Canadian forest products were worth a record $47.4 billion in 2000. Wood pulp prices were excellent throughout the year, with the result that the value of pulp exports was $2.5 billion higher than that of the previous year. Softwood lumber prices, in contrast, declined steadily during 2000, and consequently the value of exports declined by $1.1 billion. The value of exports of other forest products increased in 2000 for the tenth consecutive year.

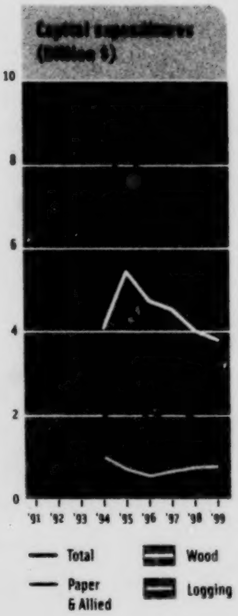
2000	**Billion $**	**Annual change**	
		1 year	10 years
Total	47.4	7.2%	8.7%
Other forest products	19.0	7.4%	14.6%
Softwood lumber	11.5	-8.7%	8.7%
Wood pulp	9.9	32.4%	7.2%
Newsprint	7.0	8.7%	1.8%

See "Data sources" note on page 31.

Capital Expenditures (1999)

There are two main categories of capital expenditures: expenditures for new plants and equipment, and expenditures for repairs to existing facilities. Expenditures for new plants and equipment result in increased production capacity, whereas expenditures for repairs serve to keep existing plants and equipment operational. Total capital expenditures in the forest sector in 1999 were $6.5 billion ($3.3 billion of which was for new investments), which was below the annual average of $7.3 billion observed over the past six years.

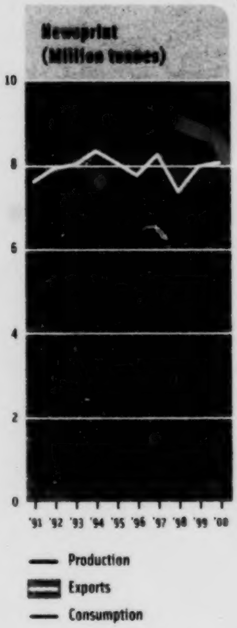
1999	**Billion $**	**Annual Change**	
		1 year	5 years
Total	6.5	-6.6%	1.8%
Wood industries	3.8	-5.5%	-1.5%
Paper and allied industries	1.9	-1.5%	-1.3%
Logging industry	0.8	2.7%	-4.8%

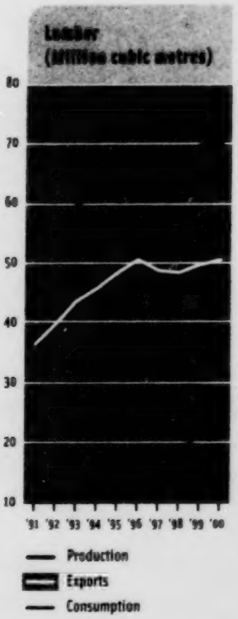


Newsprint (2000)

For the newsprint sector, 2000 was almost a carbon copy of the previous year's activity in terms of quantities of newsprint produced, exported and consumed. However, prices were slightly higher, and consequently newsprint mills were not as financially pressured as in the past few years. In North America, total newsprint consumption has not changed much during the past decade. Canada produces about 24 percent of the world's newsprint and exports about 80 percent of this production to more than 70 different countries.

2000	**Million tonnes**	**Annual Change**	
		1 year	10 years
Production	9.2	5.1%	-1.9%
Exports	8.0	2.1%	3.1%
Consumption	1.2	7.6%	0.3%

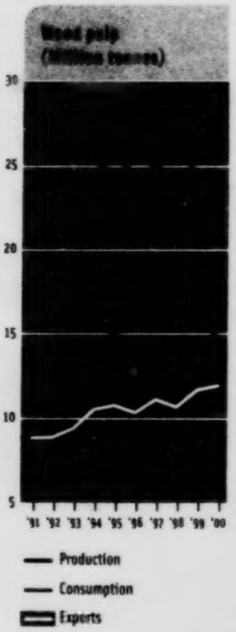




Lumber (2000)

Canadian softwood lumber production in 2000 equalled the record set in 1999. Domestic consumption was off slightly, but there was a slight increase in exports. Canada is the world's second-largest producer of softwood lumber, with a fifth of world production. Canada is also the leading exporter, with 51 percent of the world market. While quantities produced and sold were virtually unchanged in 2000 as compared to 1999, prices and earnings were down. For example, the price of spruce/pine/fir two-by-fours,random lengths, delivered to the Great Lakes, was $425 per thousand board feet at the beginning of 2000, whereas by December it had fallen to $294, a decline of 31 percent. (The Canada United States Softwood Lumber Agreement expired in March 2001).

2000	**Million cubic metres**	**Annual change**	
		1 year	10 years
Production	69.6	0.1%	3.0%
Exports	50.4	1.5%	3.3%
Consumption	21.2	-2.6%	2.5%



Wood Pulp (2000)

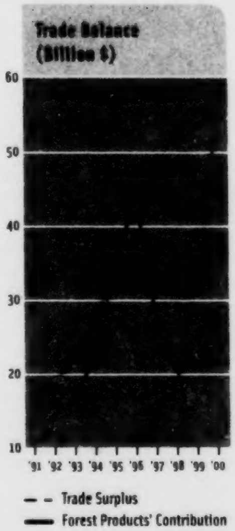
Canadian wood pulp production, consumption and exports rose to new heights in 2000. Canada is the world's second largest producer of wood pulp, after the United States, but it is the world's leading exporter, with 25 percent of the international market. Canadian wood pulp is exported to over 50 countries: the United States accounted for 33 percent of Canada's total exports, Asia received 30 percent and Europe took 25 percent. In recent years, Canadian paper makers have been using less wood pulp and more recycled paper, but for the past two years, paper makers have increased their production to such an extent that they have consumed more of both of these main sources of fibre.

2000	**Million tonnes**	**Annual change**	
		1 year	10 years
Production	26.8	5.1%	1.4%
Consumption	15.2	7.6%	0.3%
Exports	11.9	2.1%	3.1%

Trade Balance (2000)

In 2000, forest products contributed $37.5 billion to Canada's positive trade balance, $2 billion more than in the previous year: forest products exports were worth $47.4 billion, while forest products worth $10 billion were imported. In the area of forest products, Canada has a trade surplus with virtually all of its trading partners, that is, Canada exports more forest products than it imports. The largest trade surplus was with the United States, with exports to that country exceeding our imports by $27.8 billion. Japan was second with the surplus amounting to $3.4 billion. Canada's trade surplus with Europe was $3.2 billion, and for trade with Asia, the surplus was $2.4 billion.

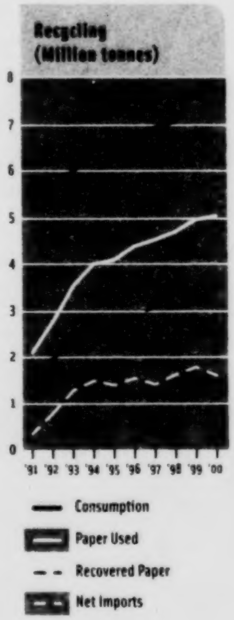
2000	Billion $	Annual change	
		1 year	10 years
Trade surplus	55.2	58.9%	18.0%
Forest products' contribution	37.5	5.9%	8.0%



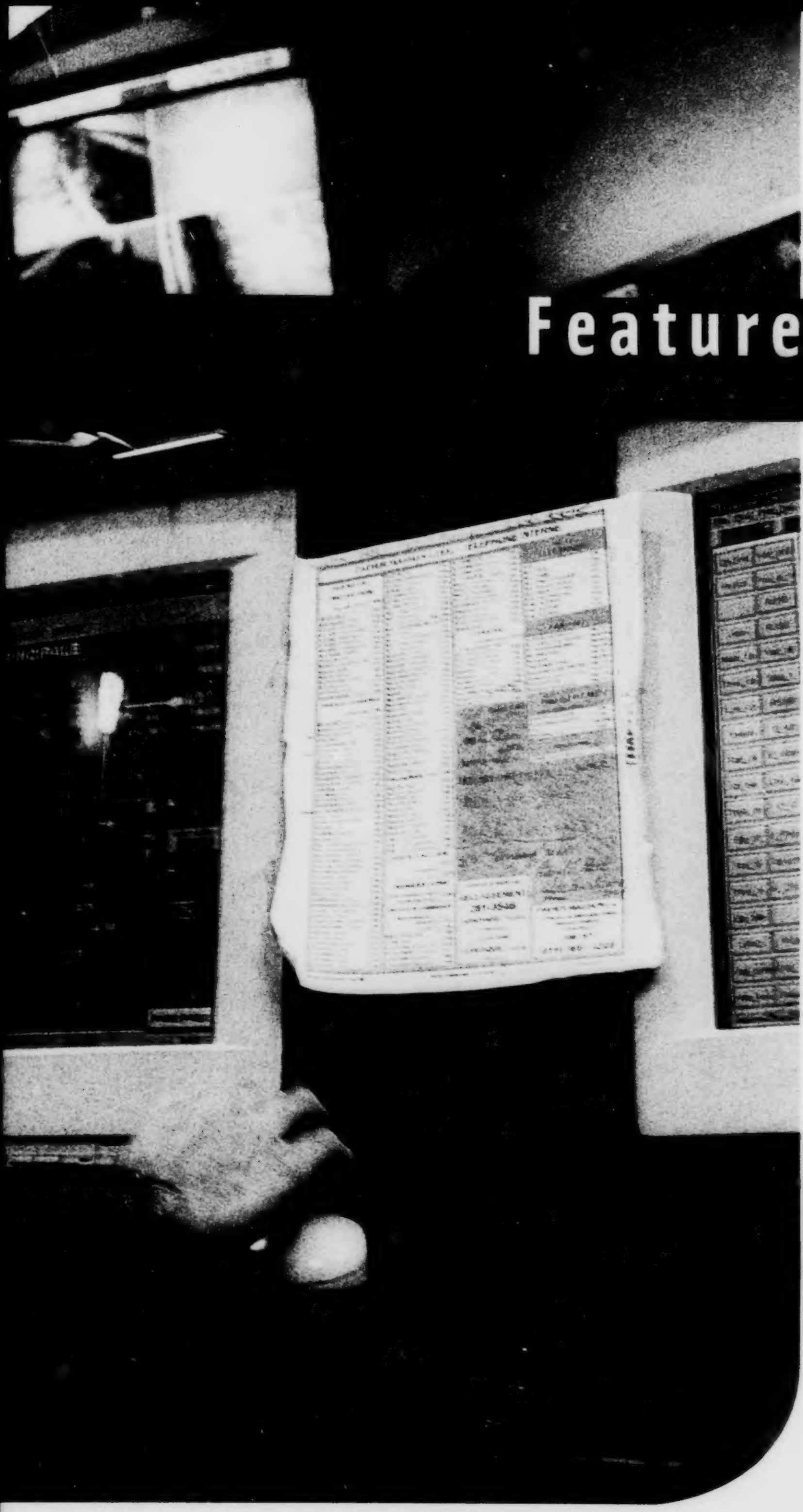
Recycling of Waste Paper and Paperboard (2000)

Over the last decade, the use of waste paper as a source of fibre by Canadian paper mills has increased to such an extent that these mills now import 45 percent of their waste paper consumption from the United States. This clearly indicates that Canada's paper industry would welcome larger amounts of waste paper from Canadian recycling programs. Paper and paperboard consumption in Canada in 2000 is estimated at 7.9 million tonnes. Of that amount, 3.4 million tonnes are recovered for the production of paper, 0.6 million tonnes of which are exported. The quantity of waste paper used for purposes other than paper production is not precisely known. If calculated only on the basis of the volume of waste paper recycled in paper mills, the recovery rate in Canada in 2000 is estimated at 43.3 percent. Canadian paper mills recycle five million tonnes of waste paper, 2.7 million tonnes of which are generated in Canada and 2.3 million tonnes of which are imported.

2000	Million tonnes	Annual change	
		1 year	10 years
Consumption of paper and paperboard	7.9	3.3%	4.3%
Recovery of waste paper	3.4	8.0%	9.6%
Use of waste paper	5.0	1.6%	13.9%
Net import of waste paper	1.6	-9.9%	35.8%



An operator verifies the status of the pulping process on the control system at the thermal mechanical pulp plant at Papiers Masson.



Feature Article

Sustainable Forestry:

A Reality in Canada

In the past decade, Canada has made numerous commitments–national and international, formal and informal–to sustainable forest management. As a nation, we have accepted that forest management must evolve to encompass diverse priorities and values.

We understand that broader options are available, and we know that the old ways are not necessarily the best ways. But in the end, what counts most is not what we commit to, or what we understand, but what we do. As Canada prepares its forests to meet the needs of a new millennium, exciting changes are occurring in forest planning and on-the-ground activities. New partnerships are springing up to manage forests collaboratively, for a wide range of benefits. Innovative practices are surfacing to improve forest productivity while upholding ecological integrity. Creative policy and management approaches are taking Canada's forests in new directions. All of these changes are adding up to concrete, demonstrable progress toward sustainability.

For this edition of *The State of Canada's Forests*, we gathered a dozen wide-ranging examples of innovative forest management across Canada. These profiles of community forests, woodlot owners, companies and other forest stakeholders, as singular as they are, convey a unified message: sustainable forest management is a reality in Canada, a reality that exists only because these groups are willing to work together to better the nation's forests for all.

What Is Sustainable Forest Management?

There is a prevailing definition of sustainable forest management which has been adopted by many: "management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations."

In simpler terms, the concept can be described as the attainment of balance—balance between society's increasing demands for forest products and benefits, and the preservation of forest health and diversity. This balance is critical to the survival of our forests, and to the prosperity of forest-dependent communities in all regions of Canada.

For forest managers, sustainably managing a particular forest tract means determining, in a tangible way, how to use it today to ensure similar benefits, health and productivity in the future. Forest managers must assess and integrate a wide array of sometimes conflicting factors—commercial and non-commercial values, environmental considerations, community needs, even global impact—to produce sound forest plans.

Because forests and societies are in constant flux, the definition of sustainable forest management is not a fixed one. What constitutes sustainable forestry will change over time as values held by the public change. The examples in this feature illustrate sustainable forest management as it is being practised today, to meet current objectives and criteria.

Measuring Sustainable Forest Management

An ongoing challenge for forest planners and legislators has been how to translate the concept of sustainable forestry into real and measurable goals. We may know what sustainable forest management is, but how do we evaluate our progress toward it?

Grappling with this question led Canadian governments and forest stakeholders to develop a set of science-based criteria and indicators for sustainable forest management. Released in 1995, the criteria and indicators were not artificially constructed or imposed on Canada's forest community. On the contrary, they arose out of consultation with representatives from all levels of government, academic experts, industry, non-governmental organizations, Aboriginal communities and other interest groups.

The criteria and indicators provide the most comprehensive, reliable framework we have in Canada to describe and measure the state of our forests, our management practices, our values and our progress toward sustainability. The framework recognizes that forests are ecosystems with many environmental, economic and social benefits for Canadians, and that sustainable forest management depends on an informed and involved public.

The framework's six criteria name the broad values that characterize the forest:

- Conservation of biological diversity
- Ecosystem condition and productivity
- Soil and water conservation
- Global ecological cycles
- Multiple benefits
- Society's responsibility

These criteria break down into measurable indicators to gauge the nation's progress toward sustainable forest objectives. No single criterion, element or indicator can measure sustainability on its own, but together they can reveal changes in forest status and forest management over time.

For a more detailed look at criteria and indicators, and for Canada's first substantive report on progress to date, see the article on page 68.

Sustainable Forestry: Making it Happen

Just as no single criterion or indicator can measure sustainable forest management, no single segment of the forest community can make it happen. Sustainable forest management is possible only with concerted efforts by all forest partners. The following case studies illustrate how some groups are contributing to sustainable forestry, and how they are contributing together.

Governments—federal, provincial and territorial—are ensuring that Canada meets its sustainable forestry commitments at local, national and international levels. Governments play many roles, from introducing legislation that preserves biodiversity and ecosystems, to creating models for public and community involvement in forest management. Governments are instrumental in tracking the nation's progress toward sustainable forestry.

The forest industry, especially in the past decade, has transformed its operations. Ecosystem management, advanced silviculture, community involvement, and better engineering and processing techniques are just some of the sweeping changes industry has ushered into the forest. Across Canada, operators are guided by best practices for road construction, water crossings and harvesting. They are increasingly learning, through formal and on-the-job training, how their activities affect the forest environment. Wood processors are tailoring their equipment and systems to meet environmental requirements and to get better value from the wood supply. Across Canada, industry associations have developed codes of ethics and codes of practice.

Local communities are a segment with an increasingly vocal say in how forests are managed. Communities in forested regions are tied, socially and often economically, to the health and productivity of the forest. If the industry is a major employer, these communities very survival depends on sustainable forestry. In equal measure, the survival of sustainable forestry depends on these communities, since their commitment is essential for any short- or long-term initiative to succeed.

Aboriginal people, with their enduring relationship to the land, bring a special perspective to sustainable forestry. Through their involvement in community forest projects, model forests, commercial ventures and educational programs, Aboriginal people are contributing directly to forest management in Canada. Provincial forest policies increasingly reflect management approaches that encompass traditional knowledge and use of the forest. Programs like the First Nation Forestry Program are broadening Aboriginal participation in the sector. In fact, Canada's criteria and indicators framework names consideration of Aboriginal involvement and treaty rights as key elements of sustainable forest management.

Private forest owners, who hold some of Canada's most productive and diverse forest land, figure prominently in the sustainable management equation. Private owners are managing their forests for a variety of benefits, from recreation to timber to wildlife. Be they individuals, communities or companies, private forest owners are educating themselves about alternative forest practices. Many forest owners and woodlot associations have adopted sustainable management plans and codes of practice. Continuing education, field tours, stewardship conferences, and tax incentive programs for effective forest management are just a few of the resources helping these owners manage their forests.

Forest researchers are the architects of sustainable forestry. Canadian scientists and researchers are critical in determining how to quantify, predict and ensure sustainability. Besides focusing on biodiversity and ecosystem management, scientists, academics and professional foresters are delving into areas like computer modelling, tree genetics, forest mapping and the forest's role in global climate change, all of which advance sustainable forest objectives. Canada is also home to groundbreaking research in the softer sciences of forest management—disciplines like ethics, economics and the social sciences—needed to account for and measure different forest values.

Faced with the common goal of keeping the nation's forests sound, productive and beneficial, members of Canada's forest community are collectively practising sustainable management in countless new and tangible ways. The case studies that follow provide a random look at the many forms forest management is taking. Far from being exhaustive, these examples merely hint at the deep commitment and diverse approaches to forest management evident across the country.

NATIONAL ROUNDTABLE ON THE ENVIRONMENT AND THE ECONOMY

The National Roundtable on the Environment and the Economy (NRTEE) is an independent advisory body, legislated by Parliament in 1994, that explains and promotes sustainable development and provides decision makers, opinion leaders and the Canadian public with advice and recommendations for promoting sustainable development. Members are appointed by the Prime Minister of Canada and represent a broad range of regions and sectors, including business, labour, academia, environmental organizations and First Nations.

Working with stakeholders across Canada, the NRTEE identifies key issues with both environmental and economic implications, examining these implications and suggesting how to balance economic prosperity with environmental preservation. Their activities are organized into programs and each program is overseen by a task force of NRTEE members.

The NRTEE task forces commission research, conduct national consultations, report on agreements and disagreements and recommend how to promote sustainability. Their approaches are impartial and inclusive—permitting the expression of all points of view in open debate. Stakeholder roundtables are often used to ensure progress in sensitive areas.

More information on the NRTEE is available at http://www.nrtee-trnee.ca

CURRENTLY, THE NRTEE'S PROGRAM AREAS INCLUDE:

- Environment and Sustainable Development
- Economic Instruments Indicators Initiative
- Eco-efficiency
- Health, Environment and the Economy
- Green Budget Reform
- Sustainable Development Issues for the New Millennium
- Ecological Fiscal Reform
- Aboriginal Communities and Non-renewable Resource Development

Showing Sustainability by Example

Thanks to the exceptional practices of Laval University's forest management team, Quebec's **MONTMORENCY FOREST** has become healthier, stronger and more productive. The Montmorency forest is demonstrating how maintaining the health and productivity of forest ecosystems is an important step toward sound stewardship and the sustainable development of forest lands. The work being done in this teaching forest is conserving biological diversity while providing a sustainable flow of benefits for future generations of local communities.

When the university took over management of this 6 665 hectare forest in 1965, (of which 6 000 hectares was considered productive forest) the average annual growth rate was 1.5 cubic metres of wood per hectare. By the time of the 1992 forest inventory, that figure had increased to 2.25 cubic metres annually. This jump is due mainly to the university's innovative approaches to forest planning and operations.

In the Montmorency forest, the only large-scale natural disturbance is infestation by the spruce budworm, which tends to attack older trees. To keep the forest vigorous, managers try to create a mosaic of young and older stands. Thus, each year part of the forest is harvested, usually in small patch clearcuts. The remaining trees are healthier and stronger, yielding more wood and providing a better mix of food and cover for wildlife like moose, deer, snowshoe hare, fisher and lynx.

The harvesting is conducted by a permanent, well-trained crew who practise careful logging. Using tracked wood-processing machines, they cut the trees and leave the branches, tops and, most importantly, tree seed, at the stump. This enables the forest to regenerate naturally. They then transport the cut logs to the roadside with tracked forwarders. Tracked machines leave a softer imprint than wheeled vehicles, which means less soil disturbance. To further cut down on disturbance, the management team is also trying other practices such as harvesting in winter, when the ground is frozen and the snow helps protect soil. Harvesting is suspended for several months in spring, when the ground thaws, since wet soils are susceptible to rutting and erosion, and tree bark is more easily damaged during this growth period.

"...the Montmorency forest provides an excellent example of how maintaining the health and productivity of forest ecosystems leads to sound stewardship and sustainable development of forested lands."

Within one year of harvest, the foresters measure tree regeneration. According to the forest management plan, no more than one-third of each "landscape unit" (10 square kilometres each) should be in the regeneration phase at any time, which means all stands with trees under 20 years old. The managers exceed Quebec regulations, which require 60 percent of cutover areas to be restocked after harvest, by upping the requirement to 80 percent. To meet this target, they routinely plant white spruce seedlings on harvest trails, and in all understocked areas, within two to three years of cutting. The trees are then thinned eight to 12 years after harvest, which promotes overall forest growth and favours desirable tree species and superior specimens. Operators take special care to minimize the impact of tree thinning on wildlife.

The Montmorency forest managers need not show a profit, but they must cover costs. Fortunately, with income from logging and recreational user fees, the project has become self-sustaining. The provincial government built the main road into the forest; forest revenue pays for its maintenance and for the construction and maintenance of all branch roads. Undergraduate and graduate students conduct research, gather information and help with planning, which contributes to informed decision making about the forest.

The management team's goal is to keep Montmorency a multiple-use forest that benefits all users. Along with wood production, recreational use of the land has increased steadily in the past 35 years. Rental cabins are booked year-round, and for a modest fee, an interpretive school program is available for primary grades. The forest managers believe that connecting with urban populations is important in raising general awareness about environmental and ecological issues.

As well, planners have set aside eight percent of the forest area, representing all ecosystems on the site, as biological reserves with no harvesting. These reserves contain both poor and fertile soils, steep slopes and level areas, and a mixture of healthy and dying trees. The reserves will help researchers study ecosystem processes in forests with little human disturbance. The forest plan also identifies "special management zones" near lakes, streams, trails, cabins and roads.

The Montmorency forest management committee has 20 representatives, each serving a three-year term. The committee includes a range of stakeholders: university faculties, the local municipality, the provincial Ministère des ressources naturelles, the forest industry, local First Nations, recreational groups, students, the area school board and others. The Dean of the Faculty of Forestry and Geomatics at Laval University gives final approval of the forest management plan.

In addition to being a teaching forest, the Montmorency forest provides an excellent example of how maintaining the health and productivity of forest ecosystems leads to sound stewardship and sustainable development of forested lands. The work in Montmorency is improving the forest environment while providing a sustainable flow of benefits for current and future users.

Mixed Uses, **Multiple Benefits**

HIGHVIEW FARMS* is a third-generation mixed farming operation on the Niagara Peninsula in southern Ontario. Owned by Fred and Sharon High, the 90-hectare property supports a beef operation, a variety of field crops and a woodlot. The farm is also located in the headwaters of Twenty Mile Creek. For years, Fred High has been managing the entire property—woodlot, waterways and farm fields—as one ecosystem. He has also opened up his farm as a demonstration for landowners and others to view how agriculture, woodlot management and water and soil conservation practices can coexist.

One notable feature of Highview Farms is its water and sediment control basin, which was designed using the site's natural topography. The control basin feeds into the woodlot, and eventually into the headwater tributary of Twenty Mile Creek. The woodlot serves the critical function of absorbing overflow from the control basin, especially during storm runoff. In this way, it helps prevent soil erosion around the property's waterways. The woodlot also traps pollutants from water as it passes through to the creek.

The water and sediment control basin is just one of the natural designs High has incorporated into his property to manage waterways, control soil erosion, and improve water quality within the Twenty Mile watershed. His farm also uses a grass waterway to direct water across cropland, and rock chutes to further reduce erosion from water flow. The site features a cattail wetland and wild shrubs along its natural waterways, both of which filter soil and pollutants from runoff water. This vegetation, along with the woodlot, has the added advantage of providing habitat for small wildlife and songbirds.

All of the demonstration points at Highview Farms are low-cost solutions to common problems. "There is no sense spending a million dollars on a solution, because if it's not affordable for the people you are showing it to, they simply won't do it," says Mr. High. "You have to provide your audience with a reason why—you have to show them a benefit for doing it a different way in order to get them to change."

> ***"For years, Fred High has been managing the entire property–woodlot, waterways and farm fields–as one ecosystem."***

Mr. High retired some of his farm fields to improve watershed management on the property, and in doing so, created a wildlife corridor between river valley and woodland habitats. A portion of former farmland is now a tree plantation, stocked with mixed hardwood and featuring the American

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*** Recipient of Forest Stewardship Recognition award (see page 45)**

sweet chestnut, a species Mr. High also introduced into the existing woodlot. Planting American chestnuts has not only diversified Mr. High's site, it has also supported ongoing research into reintroducing the species in southern Ontario, home to the small remainder of the Carolinian Forest Region in Canada (see also the example on page 64).

In featuring agricultural areas retired for a tree plantation and for soil and water conservation, Highview Farms demonstrates the value of woodlands as a component of the rural landscape. The site provides a valuable lesson for other farmers and landowners who may be uncertain about integrating forested areas into their agricultural lands.

FOREST STEWARDSHIP RECOGNITION PROGRAM

The Forest Stewardship Recognition Program (FSRP) was developed to stimulate awareness of and appreciation for stewardship, sustainable practices, and biodiversity conservation efforts in Canada's forests. The program was founded by Wildlife Habitat Canada, the Forest Products Association of Canada (formerly the Canadian Pulp and Paper Association), the Canadian Forest Service of Natural Resources Canada and the Ontario Ministry of Natural Resources. Canada's Governor General is the official Patron of the FSRP.

During its first three years, the FSRP has recognized the achievements of over 100 exceptional individuals, companies, and organizations across Canada for their forest stewardship and biodiversity conservation efforts. (Some of these award recipients are profiled on the following pages). The FSRP is seen as a key driver toward achieving the goal of sustainable forest management, and meets several of the objectives of Canada's National Forest Strategy (1998-2003) and Biodiversity Strategy (1996).

Over the years, Highview Farms has played a pivotal role in raising community awareness of ecosystem health. Fred High is the co-founder and co-chair of the Lincoln Waterways Working Group, a local association that brings together interested parties from agriculture, conservation groups, as well as municipal and provincial governments to work through land use and resource quality issues. Highview Farms is the official demonstration site of the Lincoln Waterways Working Group, and group members have been instrumental in making the farm the model of sustainable management it is today. Together, the group partners have contributed their ideas, expertise and time to the innovative processes used at Highview Farms.

> ***"The site provides a valuable lesson for other farmers and landowners who may be uncertain about integrating forested areas into their agricultural lands."***

In addition, the group has done much to publicize the farm and disseminate its lessons. Highview Farms has been visited by government officials from all levels, provincial and international farming organizations, conservation groups, researchers and thousands of school children. Because of High's leadership and collaboration with the Lincoln Waterways Working Group, farmers, woodlot owners and other property owners are learning practical applications for combining conservation and resource stewardship with agricultural and forestry practices.

Adopting New Forestry Practices

New Brunswick has witnessed sweeping changes in logging practices over the past 10 years. Operations are more precisely planned and more mechanized, with fewer people in the woods. Forest workers are leaving a softer footprint on the land they harvest.

As an example, New Brunswick's **J.D. IRVING, LIMITED** (which also has operations in Nova Scotia and Maine) is reducing site disturbance by using provincial soil maps to determine where and when to harvest. Initially intended for agricultural purposes, soil mapping has become a valuable tool for forest managers, who can schedule operations around soil condition and seasonal weather. J.D. Irving planners now know that the south end of the company's operational area has a hard granite base, suitable for harvesting in autumn, when the heaviest rains occur. Sites in the central part of the province (the Sussex district) feature deep, well-drained soils. They are consequently reserved for operations in summer, when the land is driest and the ground will be least disturbed. Northern portions of the company's territory contain wet, swampy areas best harvested in winter, when the ground is frozen and protected by a layer of snow.

Another sustainable forestry practice that J.D. Irving has long been noted for is reforestation. From 1957 to 1999, the company planted 500 million trees. Each year, staff plant more than 10 million provincial seedlings on Crown land. On the company's private land, they annually plant 15 to 20 million softwood seedlings, using seed grown in company nurseries. Since 1980, foresters at the company nursery in Sussex have been developing seed sources that improve the trees' economic traits, including growth rate, straightness and disease resistance, while maintaining their genetic diversity.

"Since joining the Fundy Model Forest, J.D. Irving has reduced the area that it clearcuts by 20 percent and has increased selective cutting dramatically."

Since 1992, J.D. Irving has been a partner in the Fundy Model Forest, one of Canada's 11 model forests (see page 47). Located in southeastern New Brunswick and representing the Acadian Forest Region, the Fundy Model Forest brings together numerous forest professionals and interest groups whose common goal is to derive social and economic benefits from the land while keeping it environmentally healthy and sustainable.

One advantage of the model forest is that it provides a forum where these diverse partners can communicate openly with one another. Dr. Kate Frego, Associate Professor of Botany at the University of New Brunswick in Fredericton, is a strong supporter of the Fundy Model Forest.

"Trust has developed among the people who consistently attend the model forest meetings," she says. "People are able to express differing opinions in a respectful environment where their concerns are listened to and taken seriously by the other participants. I believe this has really increased the cooperation among the partnership and makes us more productive."

The Fundy Model Forest has helped groups and citizens reach consensus on many issues and has led to more joint decision making in the forest. It has also motivated J.D. Irving to research, test and adopt new and modified practices on the ground. For instance, in partnership with the model forest, the company conducted harvesting trials to learn which methods best protect and enhance the forest's natural regeneration. The results were fully adopted by the company, becoming part of daily operations. Since joining the Fundy Model Forest, J.D. Irving has reduced the area that it clearcuts by 20 percent and has increased selective cutting dramatically. The company has also introduced new alternatives to road building that have reduced road construction and crossings over water. These and other best practices stemming from the model forest partnership now figure heavily in the training given to the company's woodland operators.

The model forest is just one of the tools J.D. Irving is using to make sustainable forest management a reality, says Bob Eastwood, regional manager of the company's Sussex operations and a member of the Fundy Model Forest board. Like Dr. Frego, he emphasizes that an outstanding benefit of the partnership has been to open the lines of communication within the forest community.

MODEL FORESTS LEADING THE WAY

Spread across the nation's forest regions, Canada's 11 model forests are living examples of innovative sustainable management. The Model Forest Network was launched in 1992 by Forestry Canada (now Natural Resources Canada–Canadian Forest Service), which still provides primary funding, scientific expertise and administrative support, and is a principal partner in each forest. Since then, the model forests have developed, tested and shared new approaches to managing forests–approaches that satisfy economic, environmental and social objectives alike.

More than just showcases of sustainable management, the model forests are vital knowledge centres, testing new approaches and then transferring the successful results and technologies outside the program. And because the model sites represent all of Canada's forest regions, they reflect the social, economic and ecological differences between the nation's forest communities, making them invaluable illustrations of forest research and planning at the local level.

The real-life solutions tested in Canada's model forests respond to both local needs and global concerns about forest management. These solutions are being shared nationally and internationally, and are helping to change the way forests are managed around the world.

Improving communication is the objective of one of J.D. Irving's most successful New Brunswick initiatives. The "Good Neighbour Policy" is a practice the company began about three years ago, mainly to address issues that arose because people felt uninformed about activities in their own neighbourhoods. As a "good neighbour," the company now informs residents beforehand that forest operations will start in their area. A foreman goes door to door within one kilometre of a scheduled harvest area to tell residents about the planned work. If no one is home, the foreman leaves his name and number, along with an invitation to call him. Since introducing this practice, the company has seen the number of local issues drop. "They know what is going to happen; they know what to expect," says Mr. Eastwood. "We decided that as we were working closer to people's homes, we wanted to do something different."

Urban Forestry:

Managing Green Spaces

Over the past 12 years, the Urban Forestry and Natural Environment & Horticulture Section of **TORONTO'S PARKS AND RECREATION DIVISION*** has unveiled several urban forestry and biodiversity projects that promote natural ecosystems and demonstrate the benefits of community stewardship. These projects have, among other things, enhanced wildlife habitat, increased plant biodiversity, renaturalized severely degraded sites and restored historically important areas in the city. Toronto boasts some 8 000 hectares of parkland, including waterfront along Lake Ontario, woodlands, ravines and six extensive river valleys. A full 71 percent of this area is classified as natural environment land—a significant holding compared to other municipalities in Canada.

Much of the valley and flood plain land was bought by the Toronto and Region Conservation Authority in the 1950s, to get people and industries out of the river valleys and onto safer ground following the death and damage wreaked by Hurricane Hazel. These lands are now leased back to the City for management. In later waves of development, city planners and utilities used the reclaimed areas as corridors for transportation, gas pipelines and hydro lines. Despite the high levels of disturbance associated with urban development, and the consequent encroachment of a number of invasive plant species, these lands still contained pockets of relatively intact and healthy ecosystems.

> ***"...by the early 1990s, the city was deluged with public requests to organize volunteer plantings."***

In the late 1980s, the City of Toronto recognized the deterioration of these lands and began systematically restoring their ecological balance and biodiversity. In the beginning, the work was often done by city employees and community members, on their own time. But soon the idea took hold, and by the early 1990s, the city was deluged with public requests to organize volunteer plantings. By 1994, through corporate sponsorships and other strategies, the annual number of plantings had ballooned from 1 000-2 000 at the outset to 35 000-40 000 trees, shrubs and herbaceous plants. The planting projects, funded by various contributors, targeted many sites around the city.

As the rejuvenation program evolved, so did its organization and its use of science. Restoration ecologists got involved. The projects began adopting modified planting techniques for individual plants, in combination with a "managed succession approach" to planting selected sites. The renaturalization kept gaining momentum, and the success rates kept climbing.

** Recipient of Forest Stewardship Recognition award (see page 45)*

After such promising results, the next logical step has been to launch an interpretive program at the sites to teach residents why green space is important. With 74 percent of the country's population in urban areas, many Canadians have limited experience and knowledge of nature. Toronto's program is helping people understand that green spaces—not just those in urban centres but all parks, farmland, private holdings and public forests across Canada—are ecologically important and fragile, requiring careful and sustainable management. According to Toronto's Natural Environment Coordinator, Garth Armour, "This interpretive program to heighten the awareness of the urban population about the environment is a logical extension from the original mandate. But people need to know that the entire country is facing the same sorts of problems in the way natural resources are managed."

The message is coming through loud and clear in Toronto. The City's natural areas are valued by residents for many reasons: they moderate the city climate, provide cleaner air and water, and nurture the spirits of those who enjoy them. Moreover, the City's programs are teaching people how ecosystems function, how they should be treated, and why it is important to enhance and maintain forest lands—and indeed all green lands—not just for their aesthetics but for their ecology. The City of Toronto's initiatives are advancing sustainable forest and natural areas management by improving the health and diversity of forested ecosystems in a large urban environment.

SUSTAINABLE DEVELOPMENT STRATEGY

Now and for the Future

The sustainable development of Canada's natural resources is a crucial component of the nation's economic growth and will help to provide the highest standard of living and quality of life to Canadians in the 21st century.

Natural Resources Canada's Sustainable Development Strategy-Now and for the Future is based on a vision of the future in which the wise use of natural resources will enable the protection of health of Canadians, the environment and the landmass, while continuing to meet human needs for energy, forest and mineral-based products, and will ensure that similar opportunities are sustained for future generations. The Strategy includes a commitment to measure the vision through indicator development and reporting, which will allow the measurement of progress.

At the heart of the Strategy is a framework for advancing the vision of a sustainable future. The framework includes strategic actions that focus on six themes: climate change; corporate stewardship and accountability; innovation; knowledge and information; leadership and partnerships; and sustainable communities. Each strategic action presents: the issue or problem to be addressed; the partnership approach to addressing the issue; time-bound and measurable targets; and anticipated outcomes in the context of advancing sustainable development.

For more information on Natural Resources Canada's Sustainable Development Strategy-Now and for the Future visit http//:www.nrcan.gc.ca/dmo/susdev

Testing a New Concept:

Joint Forest Management

In Quebec, where nearly 90 percent of forest land is publicly owned, the forest regime is special. For one thing, a variety of diverse users—from municipalities to forest companies, from landowners to recreational outfitters—hold "rights" within the province's public forests, sometimes in the same location. For another, the public forests are divided into 120 management units, where companies holding timber supply and forest management agreements (TSFMAs) are responsible for managing the forest for wood production. Overseeing the province's public forest land is the Ministère des Ressources naturelles, which upholds the management standards for public forests. Municipalities have the same responsibility for private forests.

Since the mid-1990s, Quebec has been testing a unique approach to managing its public forests in a manner that recognizes all users' rights. The approach, known as **FORÊT HABITÉE** ("inhabited forest"), is a concept of joint forest management that allows diverse users to make decisions about their local forest. According to Luc Bérard, a professional forest engineer for the forest management service of the Ministère des Ressources naturelles, "The Forêt Habitée approach resulted from public pressure. People wanted to be more involved in the management of forest lands surrounding their communities, and that is the purpose of inhabited forest initiatives."

The concept of Forêt Habitée is being tested across the province with 14 pilot projects, all focusing on multiple use and community-based forest management. Together they cover a total area of 4 000 square kilometres. The projects are supported financially, technically and administratively by the Ministère des Ressources naturelles, which is closely monitoring the projects to determine which structures and strategies work best.

"Forêt Habitée ("inhabited forest"), is a concept of joint forest management that allows diverse users to make decisions about their local forest."

Within each project, the groups and individuals holding rights to a particular forest tract come together in one forum, where they must reach consensus on how to sustainably manage all forest resources in the project area. Besides forest companies holding TSFMAs, the project partners may include local and regional municipalities, landowners, contractors, outfitters, tourist industry representatives, fish and game associations, and snowmobile, hiking and ski clubs, with or without official rights to the forest. Some projects include First Nations and community organizations.

Some Forêt Habitée projects cover both private and public forests; others are on exclusively public or private land. The number of partners in each project ranges from two to 18, the average being six or seven. In all cases, the partners must cooperate and prepare the project area's multi-resource development plan together. About half the partnerships are informal, while the others are set up as corporations or similar legal entities. All rights held by the legal structure, and all benefits and wealth generated from it, are shared among the partners.

At present, five of the 14 projects are making a profit or at least breaking even. For the successful projects, harvesting and selling timber are essential activities, generating most of the revenue. But in some instances, revenues from non-timber resources and services, like recreation, hunting and fishing, contribute up to five percent of the annual income. A dynamic project leader also appears to be a key ingredient for success.

Although Forêt Habitée projects unite users in the common goal of sustainable forest management, responsibility sharing remains a sensitive area. Some projects have adopted conciliation processes to help partners work through disputes, but establishing priorities and allocating costs and revenues are still sources of tension.

In most cases, projects are particularly demanding for the forest industry that supports them. Yet there are definite benefits for forest operators. By ensuring that the lands on which they operate remain healthy, balanced and productive, companies assure themselves of a reliable source of wood supply into the future. Taking part in the projects also allows companies to defend their interests and makes forest certification (see page 78) more attainable. In addition, forest companies can secure new sources of wood from private or public lands without a timber supply and forest management agreement.

Non-industry participants gain just as much from the partnership. With an assured place at the negotiation table, they now play a meaningful role in forest management, at both the planning and execution stages. Indeed, the non-industrial, social side of forest management is a critical component of the Forêt Habitée approach. Project groups manage their forest areas for an array of non-timber values, and input from local communities—including First Nations, who are involved in two of the 14 projects—is essential. Ecosystem health and biodiversity are accounted for in all projects. In the end, each project's multi-resource development plan reflects the wide-ranging values of all its partners.

With the Forêt Habitée initiatives, some Quebecers are experiencing a new approach that is seeing fair, effective and inclusive decision making at work in their forests. These project forests are being managed for a multitude of users, with a multitude of values. By placing community responsibility and multiple use at the top of the agenda, Forêt Habitée is illustrating how healthy forests can meet many demands and produce benefits for all.

New Ideas

Though often outside the forest canopy, wood manufacturers nonetheless have an important role to play in making sustainable forest management a reality. As these two Alberta companies show, reducing emissions, being open about environmental monitoring and finding creative uses for wood byproducts are some of the ways in which Canadian wood manufacturers are proving they are responsible forest stewards.

WELDWOOD OF CANADA operates a pulp mill in Hinton, Alberta, not far from Jasper National Park. For large industrial facilities like this, environmental emissions monitoring is a normal part of operations. But in most facilities, the monitoring is done by company staff, who report directly to the provincial government. Communities have raised concerns about the transparency of this type of self-monitoring structure.

There are no such concerns at the Weldwood mill, which has adopted a citizens' monitoring program, developed with help from the Environmental Law Centre, a non-profit group based in Edmonton. Weldwood sent citizens from its public advisory committee on a training course that taught them how to take water and air samples. Afterwards, the mill presented all committee members with a "golden key" and invited them to enter the mill at any time to collect samples. The mill also gave the individuals names of several independent laboratories where they could submit the samples for analysis. In the end, these specially trained citizens continued as members of the public advisory committee, with the assurance that the mill is always open to unrestricted effluent monitoring.

> ***"Weldwood sent citizens from its public advisory committee on a training course that taught them how to take water and air samples."***

By inviting local citizens to be its environmental watchdog, the Weldwood mill is sending a strong message about responsibility, trust and credibility—all essential ingredients in meeting public expectations for forest and environmental health.

Back in 1996, **AINSWORTH LUMBER COMPANY LIMITED**, an oriented strand board producer with its mill located near Grande Prairie, Alberta, began investigating whether the byproducts of its operations—sawdust, wood strands, bark and wood ash—could be reduced, reused or recycled. Together with the companies Canadian Forest Products (Canfor) and Manning Diversified Forest Products, Ainsworth approached Fairview College about testing agricultural applications for these byproducts. Because the wood residues contain valuable nutrients like potassium and phosphorous, and help retain soil moisture, the idea seemed worth pursuing.

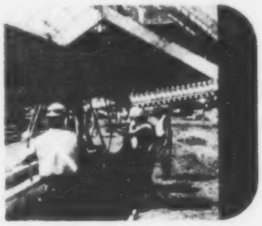
After experimenting with different byproducts and mixtures, researchers found that applications of wood ash immediately increased crop yield on test plots. And because wood ash's high pH helps neutralize the acidic soils of northern Alberta, applying it would save farmers the time and cost of liming their soil for the same result.

> **_"Thanks to Ainsworth's resourceful efforts, wood ash was recently approved as an agricultural supplement by the Alberta government."_**

Across Alberta, roughly 100 000 tonnes of wood ash is landfilled each year. For companies that produce it, diverting the byproduct for agricultural use has the environmental benefit of minimizing landfill, the economic benefit of saving the associated costs, and the overall advantage of making fuller, more responsible use of the forest resource. Thanks to Ainsworth's resourceful efforts, wood ash was recently approved as an agricultural supplement by the Alberta government. Now Ainsworth and other forest companies are deciding how to distribute and possibly market the product.

Alberta Forest Care Program

Weldwood and Ainsworth are both certified members of the Forest Care Program, a forest stewardship initiative of the Alberta Forest Products Association. The association, which represents 66 Alberta wood manufacturers, introduced **FOREST CARE** in 1990 in response to increasing public expectations of the forest industry. Members wanted to show that they were responsible corporate citizens in three main areas: care for the forest, care for the environment and care for the community. To that end, Forest Care's principles and codes of practice are consistent with, and often exceed, government regulations, and member companies have pledged to meet these standards in their operations.



Since 1995, the Alberta Forest Products Association has been funding independent third-party audits of Forest Care members. The auditors, who review members on a three-year cycle, are not connected with the industry, and they must possess minimum qualifications and pass an exam to qualify for the role. The association's practice of using local observers to audit forest operations has gained credibility within the province over the past six years. It is showing Albertans, in a transparent and measurable way, that wood manufacturers are serious about using the forest resource responsibly, and will open themselves to public scrutiny to prove it.

Effective Smaller-Scale Forestry

Based in Courtenay, British Columbia, the **NORTH ISLAND WOODLOT ASSOCIATION*** is a not-for-profit organization that promotes small-scale sustainable forestry on northern Vancouver Island. Since 1986, its members have benefited from an array of workshops, demonstrations and extension services offered by the association.

The North Island Woodlot Association consists of individuals and families who own private forest land in the area, as well as holders of woodlot licences. A woodlot licence is a type of forest tenure agreement administered by the British Columbia government. The licence can be managed by individuals or companies, and it covers an area of Crown and often private forest managed for forest products and ecosystem sustainability.

Like other woodlot associations in British Columbia, the North Island Woodlot Association operates on the principle that small-scale forestry is viable and desirable. Through its teachings and demonstrations, the association shows its members and the general public that small forest tracts, when managed properly, can support sustainable wood production and better use of forest resources while still retaining their ecological and aesthetic integrity. By taking a balanced approach, the association tries to provide an alternative between large industrial activity and total preservation of forest lands.

> ***"The forest supports botanical production, outdoor recreation and some timber harvesting, and has significant watershed and wildlife features."***

The association's brand of grassroots, small-scale forestry also means more local involvement in forest management. "When I look around the Vancouver Island region," says association president Sibylle Walkemeyer, "I see many landowners who are very enthusiastic about the small-tenure forestry our association promotes. For many of them, their woodlots have become like a farm, with the whole family involved." Such "close to home" forest management benefits more than just the landowner, since increases in forest productivity can help diversify and support the entire local economy.

In January 2001, to make its services easier to access, the North Island Woodlot Association opened the doors of its new Forest Resource Centre. This storefront office offers many services to private woodlot owners, including information resources, seminars, on-site forest assessments, demonstrations, and contacts to local service providers and value-added producers. The Forest Resource Centre

*** Recipient of Forest Stewardship Recognition award (see page 45)***

is the local delivery point for Forest Renewal BC's Small Woodlands Program, a provincial government-sponsored extension program for small non-industrial woodlots. Extension specialists, foresters and volunteers work out of the centre to bring the program's activities and services to association members and non-members alike.

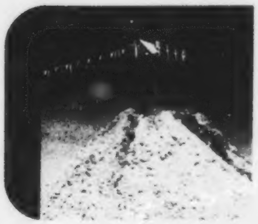
With urban and suburban sprawl encroaching on the forests and green spaces of northern Vancouver Island, the North Island Woodlot Association often bills itself as a promoter of sustainable forestry "in the suburban-forest interface." In the late 1990s, the association went beyond promoting this idea to making it tangible, by spearheading the Comox Valley Community Forest. Consisting of the three remaining Crown forests in the region, much of the Comox Valley Community Forest is adjacent to suburban and industrial areas. The forest supports botanical production, outdoor recreation and some timber harvesting, and has significant watershed and wildlife features. The community forest has many stated goals, among them local control of forest stewardship, and integration of social, economic and environmental values into forest management.

In securing the provincially monitored community forest licence, one of initially only seven granted across British Columbia, the association, through its business arm, the North Island Woodlot Corporation, worked closely with local citizen organizations, municipal governments and private forest owners. But since then, the reality of local control has been brought home to the forest partners. During a public consultation in October 1999, First Nations bands raised the concern that the community forest area would disappear from their treaty negotiations. Ever since, the North Island Woodlot Corporation, the provincial government and the affected First Nations have been in discussions over how the community forest can proceed and still respect Aboriginal rights.

Local responsibility brings with it certain challenges. It is only by working through these challenges that forest managers—be they individuals, companies or communities—can together move toward sustainable forest management. In the meantime, the North Island Woodlot Association, by continuing to teach and demonstrate the principles of sustainable forestry, is making sure the journey is an informed one.

Innovative
Management Approaches

Based in Meadow Lake, Saskatchewan, **MISTIK MANAGEMENT** is a company set up to direct the flow of wood from both Crown and private forests to two wood processing operations: a pulp mill owned by Millar Western and the province, and a sawmill owned by NorSask Forest Products. Meadow Lake Tribal Council, a First Nations organization, is the sole shareholder of NorSask, and together with Millar Western, it jointly owns Mistik Management.



Mistik puts into practice many key principles of sustainable forestry. The first is consultation, which enables industry and community values to influence forest planning and forest operations. For several years now Mistik has conferred extensively with local communities before submitting its operating plans to the government for final approval. As part of its consultation, Mistik works with nine community-based advisory boards which bring together forest stakeholders and company foresters to discuss the location, timing and details of planned operations. These advisory boards, also known as co-management boards, represent many groups, including traditional forest users, businesses, politicians, outfitters, trappers, wild rice growers and First Nations elders. Seven of the nine boards have significant First Nations and Métis representation.

On the economic development side, Mistik's policy is to give local residents the first right to economic opportunities from forest work. Mostly, these opportunities take the form of business contracts, supported by company training and loan programs. Mistik also creates employment by hiring consultants to train contractors in areas like heavy equipment maintenance and small business accounting. Between two-thirds and three-quarters of the contractors doing business with Mistik are owned by First Nations or Métis community members—a big change from a decade ago, when these groups were not well represented among the company's contractors.

> ***"Mistik has conferred extensively with the local community before submitting its operating plans to the government for final approval."***

Forest research is another priority for Mistik. The company boasts an active research program headed by a science advisory board of experts from across North America. These include specialists in forest ecology, fire science, resource economics, hydrology, wildlife ecology, aquatic ecology and sociology. The science advisory board guides Mistik in many ways, updating the company about emerging forest issues, identifying risks and knowledge gaps, and proposing worthwhile projects. The board also gives the company feedback on its procedures and practices, recommending science-based improvements when they are warranted.

With its emphasis on broadening knowledge, Mistik has conducted numerous research projects. The company is particularly focused on investigating community values and public participation processes to determine the difference public involvement makes and the best methods for incorporating community values into forest plans. Already the company is showing leadership in these relatively new disciplines of forest management.

Mistik is also studying long-term resource sustainability, a critical area of forest research. Using multiple resource management models, the company is experimenting with different scenarios to learn how to derive the greatest benefit from the most resources. With one computer mapping tool, for instance, company foresters can create a scenario that changes habitat types over time while considering how these changes affect moose populations.

Some of Mistik's research concentrates solely on trees. For example, the company is currently assessing individual harvest areas to evaluate which trees are best left on each site to promote tree regeneration, wildlife habitat and aesthetics. Other research has led the company to improve its road-building methods. For instance, Mistik developed ways of controlling erosion by managing water drainage along road systems. The company also began designing and building primary roads within the natural contours of the landscape. The company negotiates road issues with the co-management boards and the advisory boards, and provincial authorities have some say as well.

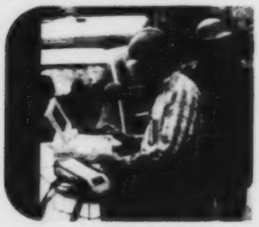
"The board also gives the company feedback on its procedures and practices, recommending science-based improvements when they are warranted."

Like other forest companies across Canada, Mistik has adopted seasonal harvesting to protect forest soils. The company carries out 60 percent of its operations in winter, then shuts down from the end of March until July. The sand flats on which jack pine grow are usually reserved for summer harvesting, their well-drained and stable soil being ideal for this season.

Mistik Management is putting into practice many elements of sustainable forestry. The company has taken a lead in defining society's roles and responsibilities, both in specific projects and overall forest sustainability, and has shown by example that public involvement works. It has created jobs and economic partnerships, largely benefiting local Aboriginal communities. And, recognizing that the basis of its success is a healthy and productive forest, Mistik has worked with forest scientists and researchers to maintain forest environment productivity from the ground up.

New Environmentally Friendly Alternatives

A look at the international forest company **StoraEnso**, whose Canadian operations are based in Port Hawkesbury, Nova Scotia, shows that it has concretely altered forest practices in recent years to address environmental concerns. From the company's point of view, these changes are not simply response-driven; the newer environmentally friendly practices also make good business sense.



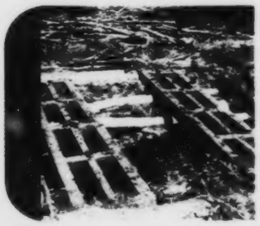
StoraEnso has long been interested in forest sustainability. In 1962, it was one of the first companies in Canada to practise intensive silviculture, and by 1995 it had planted its 100 millionth seedling. But in the last six or seven years, StoraEnso has significantly changed its silvicultural practices, particularly when conducting crop tree spacing.

Before the mid-1990s, the company employed conventional spacing, which meant workers would cut down everything between crop trees at regular intervals (usually 2m x 2m, or 2.5m x 2.5m). But since then, StoraEnso crews have adopted a new approach, one that emphasizes releasing crop trees instead of creating spacings. Workers select crop trees for the new stand, making sure they are free to grow, meaning their tops are in full sunlight. Crew members no longer remove everything between the crop trees. Hardwood trees that are less than half the height of the crop tree, as well as other softwoods, are left behind. The practice helps maintain the stand's original biodiversity and improves the soil's organic content. In addition, the softwood and hardwood mixture benefits wildlife by providing more varied habitat.

StoraEnso uses the practice of releasing crop trees in both plantations and natural stands because, as an added bonus, the sustainable practice is much more economical. There is less cutting than with the conventional procedure, requiring less labour. Also, the new method, as well as conventional spacing, improves the trees' growth rate and quality. It may also stimulate early self-pruning in the crop trees—time will tell.

"The practice helps maintain the stand's original biodiversity and improves the soil's organic content."

Another practice the company has employed to meet sustainable management objectives is the use of portable bridges. StoraEnso has helped pioneer portable bridges in eastern Canada, using them to cross numerous streams in the company's operational area. Previously, the company built log bridges or laid bundles of wood in stream-beds to traverse waterways. But as Russ Waycott, StoraEnso's Woodlands General Manager, points out, "We very quickly found that the practice was inadequate. We began using portable steel and wood bridges, and all contractors are now required to use these structures."



Part of the reason water crossings are so critical is that the soil in eastern Canada is generally silty or contains significant clay, making it vulnerable to degradation and erosion into watercourses. Well-engineered stream crossings are important in the region to protect fish habitat and maintain water quality downstream from harvesting. All StoraEnso's operations involve wood forwarders, which are outfitted with grapple booms to move wood to the roadside. But as an added benefit, these machines can install portable bridges from the near stream bank, eliminating the need to cross the stream before the bridge is in place. Once the bridge is installed, workers cover the approaches to both ends with brush to prevent wheel ruts from forming in the high-traffic areas.

"The portable bridges are so successful that the Scandinavian parent company has taken the technology back to Finland and Sweden."

The new and environmentally friendly alternative of portable bridges offers many advantages. Quicker, safer and more cost-efficient than other water crossings, the portable bridges are so successful that the Scandinavian parent company has taken the technology back to Finland and Sweden. Ease of installation, combined with protection of stream beds, water quality and fish habitat—important considerations for responsible forest management—make these structures a highly attractive option for industry.

Informed Community Decision Making

A town of 500 people, Elk Lake lies 60 kilometres off the Trans-Canada Highway in northeastern Ontario. Before its community forest project, Elk Lake was not as well off as other resource-based communities in the Timiskaming region that had broader economic bases. In fact, Elk Lake relied almost solely on wood extraction. To compound matters, the town's survival was threatened by unsustainable harvest levels and a landbase that was shrinking because of the addition of protected areas. But residents rallied, and in the early 1990s the idea of the **ELK LAKE COMMUNITY FOREST*** was born.

Elk Lake has since experienced an evolution. Embracing the concepts of sustainable forest management, residents have created a bright future for the town and surrounding areas. Indeed, Elk Lake has become a preeminent example of a working community forest. Stephen Harvey, senior policy advisor for the Ontario Ministry of Natural Resources, says Elk Lake "has the clearest vision and most progressive view of any group that has promoted itself as a community forest."

When the Elk Lake group started, its members felt they had inadequate influence over decisions being made on their behalf. For one thing, contentious land use issues in nearby Temagami had garnered national and international attention, and threatened to tarnish the local forest industry. For another, some decisions were coming from the provincial cabinet, from people with no knowledge of Elk Lake. At the same time, the Elk Lake group realized that to win a meaningful say in forest decision making, it needed to respect the province's role in local forest management.

> ***"Community forest initiatives have helped the local forest industry stay competitive while expanding its range of products and selling those products more efficiently."***

The citizens of Elk Lake could not rewrite the policies and rules governing forestry, but they were in the best position to shape local decisions because they lived and worked in the community. Terry Fiset, local reeve and board member with the Elk Lake Community Forest, recalls, "We spent a large portion of our time and resources gathering data about our forest. When you can demonstrate that you know more about the resource than anyone else, it places you in a position of control."

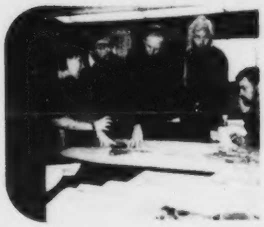
In the end, the Elk Lake group designed a package that was acceptable to the community and the government. The province did not hand over complete control of forest planning and decision

** Recipient of Forest Stewardship Recognition award (see page 45)*

making, but the Elk Lake Community Forest secured a major role in the process. It won this role partly because its decisions were informed. "Education is the key element of anything we do here," says Mr. Fiset. "If someone wants to express an opinion, it is our role to make sure it is an informed decision and not something that someone else has told them."

The partners in the Elk Lake Community Forest are individuals who have made a difference to sustainable forest management in the region. Each one is a volunteer, and some have worked on the project since 1992. The members represent a broad cross-section of environmental, forestry, First Nations and municipal interests. "We keep the dialogue going," comments Mr. Fiset. "For the most part, we deal with land use issues and we have become an effective lobby."

The Elk Lake Community Forest has contributed to sustainable forestry in Canada by broadening the usefulness and productivity of the forest. Community forest initiatives have helped the local forest industry stay competitive while expanding its range of products and selling those products more efficiently. The project has also made it possible and desirable for the industry to reinvest income in the forest and in the community, to support both economic and social needs. In this way, Elk Lake has drawn attention to the forest's capacity to provide sustainable timber and non-timber benefits.



"These decisions have shaped the local harvest levels, the allocation of natural resources, and the economic, cultural and spiritual well-being of this forest community."

Other successful projects include a four-credit course, called the Terra program, which the Elk Lake Community Forest developed for the New Liskeard high school. Now in its seventh year, the program teaches students about the forest they live in. Students have participated in duck banding and developing a 15-stop demonstration forest tour. For Elk Lake, teaching youth about resource management is a sound investment in the community's future. It encourages young people to remain in the area and helps them take greater responsibility in the business community, whether in tourism, forestry or related support industries.

The efforts of the Elk Lake Community Forest have led to fair, effective and informed decisions by community and non-community members. These decisions have shaped the local harvest levels, the allocation of natural resources, and the economic, cultural and spiritual well-being of this forest community. The community forest has also introduced local residents to a range of other economic opportunities less dependent on consumption of the region's natural resources. The Elk Lake project has thus brought a greater understanding of the social and multiple-use elements of sustainability.

Exchanging Ideas

and Using the Resource Efficiently

One of North America's largest producers of forest products, **WEYERHAEUSER** operates from coast to coast in Canada. With operations in British Columbia, Alberta, Saskatchewan, Ontario and New Brunswick, the company is faced with regional variations in forest type, provincial legislation, ecological profile and socio-economic factors. Weyerhaeuser has dealt with this diversity by setting company-wide standards that work in all jurisdictions.

As well, Weyerhaeuser relies for consistency on its "sustainability improvement team," a group of company foresters representing regional operations from New Brunswick's Miramachi River to the British Columbia coast. The group meets by phone and in person to discuss issues that affect all of Weyerhaeuser's forest operations—for example, common environmental standards and environmental management systems. Team members visit each other's sites to observe operations and share improvements.

Weyerhaeuser has formed other "improvement teams" to deal with specific topics like roads, growth and yield, biodiversity, and forest information systems. The teams have become a proven communication method that broadens the knowledge, skills and experience of all company staff.

> ***"Weyerhaeuser has dealt with this diversity by setting company-wide standards that work in all jurisdictions."***

Weyerhaeuser's regional operations provide some distinct examples of how this Canada-wide forest company is adopting sustainable forest practices on the ground.

In New Brunswick, Weyerhaeuser's road-building practices have changed greatly over the past 10 years. The company now constructs logging roads with a minimum of soil disturbance in the right-of-ways. It also builds roads with excavators rather than bulldozers, meaning fewer gravel pits are needed to supply roadbed materials. Furthermore, the company's water crossings are more carefully planned and constructed than in the past, with particular emphasis on bank stabilization to protect water quality and fish habitat downstream.

In Dryden, Ontario, Weyerhaeuser's sawmill takes part in resourceful trading arrangements that make better use of the local forest supply. The sawmill diverts large-diameter logs, which only slow down its production, to small, independent sawmills that need the logs for specialty products and frequently

suffer from unreliable supply. Conversely, Weyerhaeuser gives its small-diameter spruce trees and treetops to Abitibi for use in that company's Kenora newsprint mill. In exchange, Abitibi sends Weyerhaeuser the sawlogs that it harvests but has little demand for. The net effect is that all facilities get the right product mix, costs are improved, a smaller area of forest is harvested, and there is less waste material to dispose of.

Wapawekka Lumber, near Prince Albert, Saskatchewan, is an independent joint venture between Weyerhaeuser and the Lac La Ronge, Montreal Lake and Peter Ballantyne First Nations. Wapawekka operates a $22 million sawmill that has created 40 jobs, most of them filled by Aboriginal workers. The joint venture is the second step in a relationship that began when the three First Nations secured a logging contract in Weyerhaeuser's forest management licence area. The Wapawekka sawmill features a small log line that can saw small, crooked trees which formerly went to the pulp mill. Wood remaining after a board is extracted is still chipped and sent for pulp. The sawmill operates on the principle of extracting greater value from the wood supply rather than using more wood.

In Alberta, where woodland caribou is an endangered species, Weyerhaeuser has developed a caribou habitat management policy, as well as a strategy and set of long-term principles. These policies dictate how the company must adapt its forest management activities in the Grande Prairie area to the caribou's habitat and winter range needs. The company now operates in dispersed harvest sites in the region, while maintaining significant amounts of old growth for caribou habitat.

In the interior of British Columbia, Weyerhaeuser recently completed a comprehensive analysis of 20 watersheds. The project, which covered roughly 250 000 hectares, was conducted in partnership with the provincial forest and environment ministries, Forest Renewal BC, First Nations communities, local community groups and landowners. The analysis looked at the cumulative effects on streams of forestry, farming and mining, considering such factors as soil erosion, nearby roads, development projects, irrigation, domestic water use and terrain stability. Results of the watershed analysis will help Weyerhaeuser plan and manage its forest operations with better scientific knowledge about local water and soil conservation.

Finally, on the British Columbia coast, Weyerhaeuser is phasing in the practice of variable retention silviculture on all 1.1 million hectares of public and private temperate rainforests in which it operates. When harvesting, Weyerhaeuser now leaves behind individual trees or small islands of trees within cutover areas. The type of uncut trees and the degree of retention vary, depending on ecological conditions and specific site objectives. Variable retention is an important component of ecologically based forest management, since retained vegetation provides habitat for many species of insects, birds, mammals and other plants.

Private Woodlot Owners

Taking Action

Sassafras, black walnut, American sweet chestnut, sycamore, tulip tree—in Canada? The Carolinian Forest Region contains tree species common to parts of the United States but rare in Canada. These species grow only in the southernmost part of Ontario, mostly on the northern shore of Lake Erie. The unique mix of climate and moist yet well-draining soils in the Carolinian-Canada life zone allows for a surprising array of deciduous trees in the region. Osage orange, redbud, sycamore, sassafras, and tulip tree can grow here, but almost nowhere else in Canada

While these species were common in southern Ontario at the time of European settlement, there are now few representative examples of the Carolinian forest left in Canada. Hundreds of years of development and population growth have left the remaining woodlots in the area severely fragmented. However, 87-year-old **DANIEL WHITING LATHROP*** has ensured the preservation of a 22 hectare block of undisturbed Carolinian forest in the village of Fonthill, on the Niagara Peninsula. The forest, which sits conspicuously on the highly developed, discontinuous landscape, has been permanently designated a wildlife preserve, a gift from Mr. Lathrop and his wife Margaret—who purchased the land in 1959 and lived there until the late 1990s—to the Nature Conservancy of Canada.

"The Carolinian Forest Region contains tree species common to parts of the United States but rare in Canada."

Mr. Lathrop has devoted much of his life to stewardship of the forest. Among other things, his passion has had a profound effect on wildlife in the area. With abundant fruit from six species of oak, four hickories and other fruit-producing trees like black cherry, Mr. Lathrop's forest has been a haven for wildlife trying to survive in an increasingly urbanized region. While he owned the land, Mr. Lathrop planted more than 40 hectares' worth of trees to increase the forest interior and create wildlife corridors that help link non-developed lands in the area. As well, he was one of the first landowners to reintroduce the wild turkey into the Niagara region.

"Mr. Lathrop's forest has been a haven for wildlife trying to survive in an increasingly urbanized region."

While the peaceful preserve offers a shrine for those who want to experience one of the last remnants of a forest common here only 200 years

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** Recipient of Forest Stewardship Recognition award (see page 45)*

ago, the property—one of the most uniquely biodiverse land tracts in the area—is exceptionally valuable as an area of study. Numerous research projects have been conducted in this forest, including site-index studies and disease studies. Mr. Lathrop's own assessment and inoculation of the Canadian sweet chestnut over ten years earned him recognition and a commendation from the Canadian Chestnut Council. The forest is a training site for the Niagara Community Woodland Steward Program and the Niagara Woodlot Association. Furthermore, many groups have toured the forest for educational purposes, and the site is to become a future demonstration forest.

Mr. Lathrop has not only preserved one of the most biodiverse land tracts in the area and conveyed it to Canada; he has also preserved and conveyed the principles of forest stewardship to his family, friends and community. His influence is most notable with his daughter, Anna Lathrop. Today, she is a member of Land Care Niagara and manages 100 hectares of woodland in the Niagara area using the forest skills and principles handed down from her father. Daniel Lathrop has demonstrated a lifelong voluntary commitment to sustainable forest management, and Canada's forest diversity is the richer because of him.

Conclusion

The concrete and innovative activities illustrated in these case studies are but a fraction of the whole picture of sustainable forest management in Canada today. The responsible stewards helping our country to sustain its forest resources to meet changing demands, values and benefits are too numerous and too diverse to categorize, let alone profile.

As these examples have shown, Canada is entering the new millennium with a firm commitment to forest sustainability, dynamic partnerships in the forest community, advanced research and technologies, and a demonstrated willingness to innovate. But it is only because we have turned our commitments into realities that we can now speak of Canada as a living, practical model of sustainable forest management. With our country's proven progress, and with diverse real-life examples showing us the way, we can look ahead with confidence, knowing that Canada can face the forestry challenges of tomorrow.

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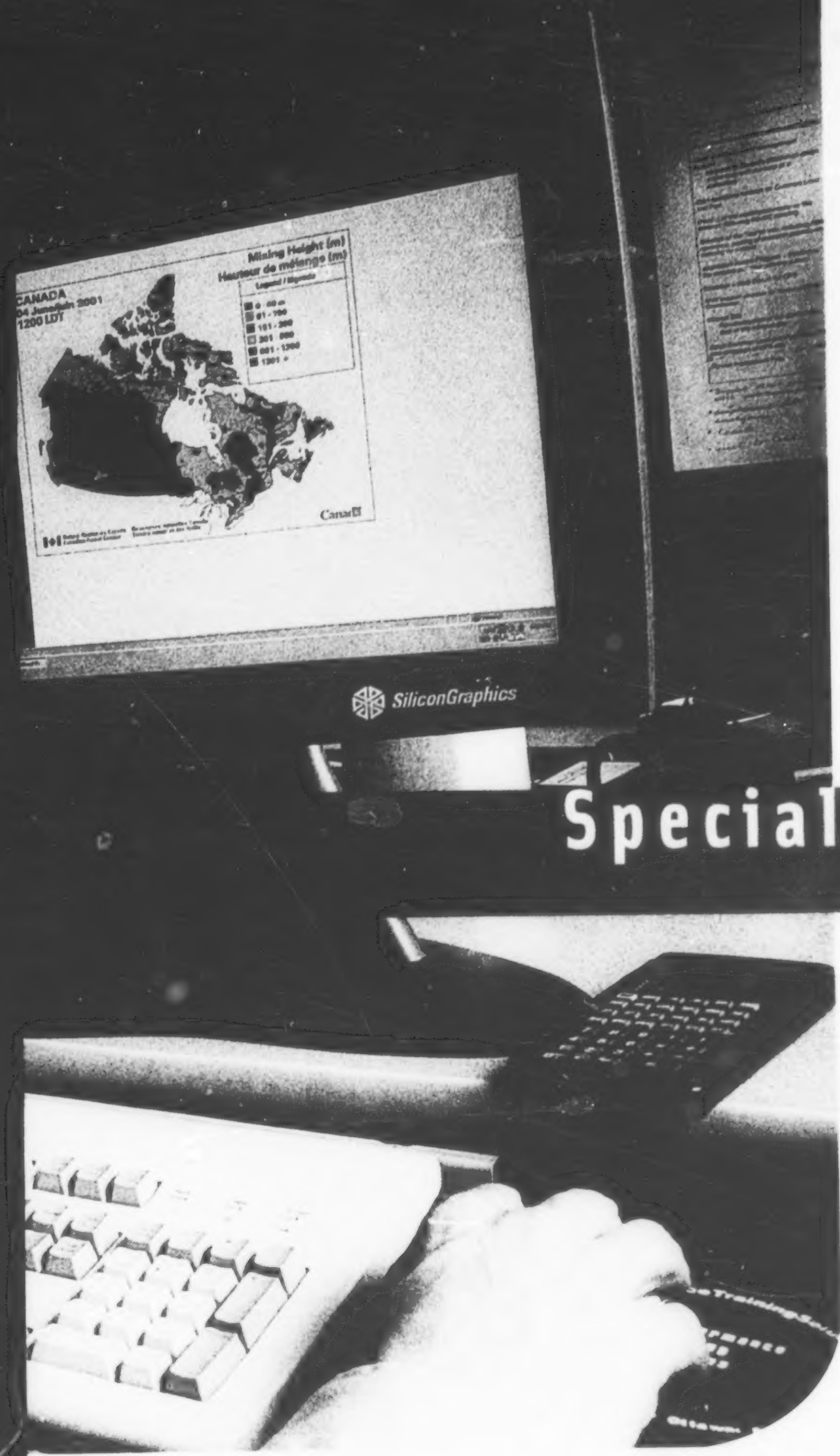


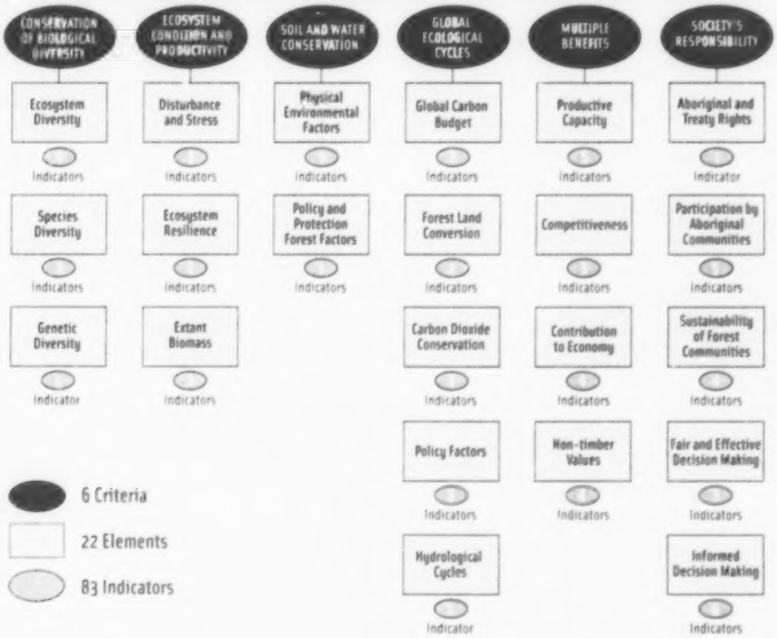
Special Articles

Criteria & Indicators of Sustainable Forest Management:

National Status 2000

Canada's efforts to report on progress in the sustainable management of forests began in earnest in 1995 with the release of a national framework of criteria and indicators (C&I) by the Canadian Council of Forest Ministers (CCFM). In 2000, the CCFM released its *National Status 2000* report, which represents Canada's first attempt to document progress on the sustainability of its forests by reporting on 62 of the 83 indicators in Canada's national C&I framework. The selection of these indicators was based on the availability of information, on retaining those consistent with international C&I processes, and on indicators fully applicable at the national level.

CCFM CRITERIA AND INDICATORS FRAMEWORK

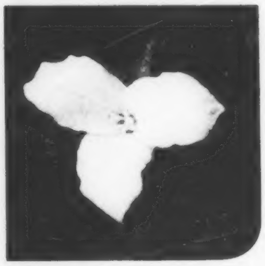


National Status 2000 draws upon the best available information based on the best research and expertise available to establish, where possible, baselines from which progress can be measured for future reporting. In compiling this and previous reports on C&I, it became apparent that key, relevant data and information holdings are dispersed in a variety of formats throughout multiple agencies and institutions and that C&I reporting could be greatly improved with the establishment of a national mechanism to access the most accurate and up-to-date information. Fostering collaboration between the various data gatherers, information custodians and user groups is critical to improving the nation's ability to report on the sustainability of its natural resources.

The CCFM C&I framework is composed of six criteria representing forest resource values that Canadians have identified as wanting to enhance and sustain.

National Status 2000 highlights for each criterion include:

Conservation of biological diversity

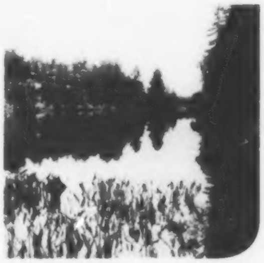


The conservation of biodiversity ensures that forest ecosystems continue to be productive and to adapt to changing conditions. Since 1992, significant progress has been made toward the completion of a network of conservation areas representative of the diversity of Canada's forests. To ensure continued progress in conserving biodiversity, the federal, provincial and territorial governments, together with their partners, have reaffirmed their commitment, through Canada's National Forest Strategy (1998-2003), to completing a network of representative areas and to establishing inventories, plans, guidelines and monitoring programs for maintaining the network.

Maintenance and enhancement of forest ecosystem condition and productivity

The incidence of ecosystem disturbance and stress, the ability of the ecosystem to recover from those stresses, and biomass production are all indicators of forest ecosystem condition and productivity. These indicators provide the basis for improved decision making in managing forests as a renewable resource. *National Status 2000* reports that knowledge regarding the impact of stressors such as pollutants and other human-induced disturbances on forest ecosystem condition and productivity is improving. For example, sophisticated fire information systems have improved Canada's ability to predict, monitor and fight forest fires. The report also explains how better understanding the frequency and severity of such disturbances can enable better assessments of how well ecosystems will recover from such disturbances.

Conservation of soil and water resources



Sustainable forest management acknowledges the critical role of forest ecosystems in regulating the flow of water and in preserving water quality and quantity for all living creatures. *National Status 2000* discusses the guidelines and management objectives in place in Canada for the protection of soil and water resources in forest ecosystems. The report also reveals that, while it is difficult to provide quantitative indicators of this value, in general, guidelines to protect streams, riparian zones, steep slopes and other sensitive forest sites have been significantly increased and enhanced in recent years for both public and private lands across Canada.

Forest ecosystem contributions to global ecological cycles

Understanding the role forests play in global ecological cycles, such as those responsible for recycling the Earth's limited supplies of water, carbon, nitrogen and other life-sustaining elements, is essential for the development of sustainable forestry practices. By modelling carbon budgets, Canada is able to track the effects of forest disturbances on global carbon cycles. In the past, Canada's forests have acted like a carbon sink—removing more carbon from the atmosphere than they contribute. Since the 1980s, Canada's forests have started to release more carbon into the atmosphere than they absorb, possibly due to fire, insect infestations, harvesting and climate change. Whether Canada's forests will be sinks or sources of atmospheric carbon into the future has yet to be clarified. Canada's forest sector has made significant gains in reducing its use of fossil fuels and, as a result, carbon dioxide emissions have not increased despite significant increases in energy use and production.

Multiple benefits to society

Forests provide a multitude of benefits to society. Sustainable development requires that Canada's forests maintain their ability to provide this array of benefits for future generations, including non-market goods, environmental functions and preservation values. The increasing value that is being placed on the non-timber attributes continues to challenge policy makers and forest managers in their quest to ensure a sustained optimal mix of forest benefits for society now and in the future. Examples of indicators of multiple benefits that are presented in *National Status 2000* include labour productivity in the forest sector, which has increased significantly over the last two decades, and expenditures on nature-based activities (Canadians spent over $11 billion on nature-based activities in 1996). The report also notes that the number of visits to Canada's parks increased almost 14 percent between 1990 and 1996.

Accepting society's responsibility for sustainable development

Sustainable development extends beyond trees and encompasses the people in forest communities. It is important that society's values are incorporated into management processes and that members of society are engaged effectively to ensure that forest resources are managed in a manner that is in the best interests of present and future generations. *National Status 2000* provides evidence that governments and industry have increased public involvement in forest planning and management processes, and that the unique needs of particular cultures and communities are being recognized.

Future reporting

National Status 2000 provides valuable information relating to the sustainability of Canada's forests, but measuring the sustainability of forests is accepted as a long-term and progressive exercise. The challenges which lie ahead for evaluating progress toward sustainability include linking the indicators of various criteria to achieve an overall assessment of Canada's progress and defining indicator benchmarks.

Recognizing that sustainable forest management is an adaptive process and that assessing sustainability is a continuous activity, the CCFM will be undertaking a review of the 83 indicators in the 1995 framework. This review is expected to improve the relevance and efficiency of the indicators for reporting and assessing progress toward sustainable development.

National Status 2000 is available at http://www.ccfm.org

Climate Change

Discussions

Since the Kyoto Protocol was adopted in late 1997, international negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) on detailed rules for implementation of the Protocol have been ongoing. The Protocol includes a requirement that industrialized countries account for carbon sinks and sources resulting from planting new forests (afforestation and reforestation) and permanent removal of forest (deforestation) in meeting their greenhouse gas emission reduction targets. It also includes a provision for further negotiation including credits for other land use, land-use change and forestry activities to add to the accounting. Issues related to these three topics have been one major focus of negotiations during the past year.

In 1998 the countries involved in the UNFCCC had asked the Intergovernmental Panel on Climate Change (IPCC) for advice on definitions, how to calculate credits and debits and other related issues that needed to be considered in elaborating the Protocol rules for carbon sinks. In May 2000, the IPCC released its resulting *Special Report on Land Use, Land-Use Change, and Forestry*. Canadian scientists played an important role in the development of the Special Report, which examines the scientific and technical state of understanding on carbon sequestration activities relevant to the Kyoto Protocol.

Canadian scientists have also been helping in the preparation of the IPCC *Third Assessment Report*. When finalized, the *Third Assessment Report* will be a comprehensive and up-to-date assessment of the policy-relevant scientific, technical, and socio-economic dimensions of climate change. It will concentrate on new findings since 1995, pay greater attention to the regional (in addition to the global) scale, and include non-English literature to the extent possible. The *Third Assessment Report* will be released in the fall of 2001.

During the past year, Canada has prepared two detailed submissions to the UNFCCC on its views on issues related to forests in the Protocol. In its August 2000 submission on land use, land-use change, and forestry, Canada outlined proposals for consensus definitions, carbon accounting rules and inclusion of forest and agricultural land management in the Protocol accounting. In March 2001, Canada made a submission summarizing its views on accounting methods for dealing with harvested wood products. *(Both these submissions, along with submissions from other countries, are available at http://www.unfccc.de).*

Countries had decided that they would try to reach agreement on these issues at the Sixth Conference of Parties (COP6) to the UNFCCC in The Hague in November 2000. At that meeting consensus could not be reached on all issues and negotiations were suspended. COP6 negotiations continued in Germany in July 2001, where Canada was successful in obtaining recognition for forest and agricultural land management in the Protocol accounting. Technical discussion will continue in Morocco in the fall of 2001 at COP7, and at other international meetings. Repeated statements made by the United States since March 2001 that it does not support the Kyoto Protocol because it would harm the US economy have added another level of complexity to the process.

Under the Kyoto Protocol, Canada agreed to reduce its greenhouse gas emissions to six percent below 1990 levels by 2008-2012. Population and economic growth by then will have caused our emissions to grow significantly. In order to meet our six percent reduction objective, greenhouse gas emissions will need to be reduced by about 26 percent from currently projected 2008-2012 levels. In October 2000, Canada's federal government released its *Action Plan 2000 on Climate Change*, as a first major step toward achieving this goal.

Action Plan 2000 provides $500 million over five years for various measures in key sectors, including the forest sector (other sectors include energy, transportation, industry, agriculture, waste management and technology). Once implemented, the federal government estimates the measures will reduce Canada's greenhouse gas emissions by an estimated 65 megatonnes annually during the 2008-2012 commitment period, or one-third of our Kyoto Protocol objective. This federal contribution to the federal-provincial First National Business Climate Change Plan is in addition to the previous federal investment outlined in the February 2000 Budget, in which $600 million was committed over five years toward increased action on climate change.

The forest component of Action Plan 2000 includes a three-year preparatory measure: the Feasibility Assessment of Afforestation for Carbon Sequestration, which focuses on assessing, planning, designing and evaluating the feasibility of a large-scale afforestation program in Canada. As a means to assess the design, mechanics and feasibility of such a program, afforestation pilots/trials will be identified across the range of suitable lands in Canada.

Forest 2020:

A Budding Dialogue in Canada

Across Canada, there are growing societal demands for land use decisions to place a greater emphasis on recreation, resource protection and species at risk. If, as a nation, we are to dedicate larger areas to protection, resource conservation, and integrated use, while guarding Canada's position as a leading exporter of wood products, and ensuring community stability, a newer, more balanced approach to responding to these demands is needed.

As a key engine of the national economy it is essential that Canada's forest sector consider the realities of the global forest products marketplace in order to remain competitive. Canada, as a forest nation, is also committed to contributing to global conservation efforts and to demonstrating environmental stewardship.

At first glance, it may appear contradictory that the forest sector needs to find ways to produce more wood while at the same time undertaking forest conservation efforts. The Canadian Council of Forest Ministers (CCFM), however, is committed to ensuring Canada approaches these two apparently contradictory challenges from the perspective of harmonization.

The CCFM is currently undertaking a dialogue with Canadians to seek their views on a new approach for the sustainable development of the forest sector. The new concept under discussion has become known as Forest 2020.

The demand for wood

Wood products are sometimes viewed as one of the staples of human life, but their role in the global economy is also important. It has been estimated that total global annual industrial fibre production reached 1.5 billion cubic metres at the end of the millennium. Wood production has risen by 50 percent since 1960 and is expected to rise between 20 and 50 percent by 2020. These increases in wood fibre production will be required to meet the needs of the ever-increasing world population, which is expected to reach 10 billion by 2050. Although nearly 50 percent of annual global wood harvest is for fuelwood for use within developing countries, continued development at the global level is also influencing the consumption of forest products.

Where will this wood come from?

With the global demand for wood expected to continue to increase for the foreseeable future, it is reasonable to ask: where will this wood come from and what are the possible environmental impacts on the resource and its associated values of increased fibre extraction?

The world's total forest area is estimated to be 3.5 billion hectares, which represents 27 percent of the Earth's total land area. Less than half of this forest area is currently available for fibre production. The remaining forest areas are not economical to harvest due to factors such as prevailing market conditions, or are protected by legislation. Industrial wood production is also currently concentrated in particular regions—North America, Europe and Asia.

Until recently, much of the world's wood has come from natural, relatively undisturbed forests (also called primary forests). But according to the United Nations' Food and Agriculture Organization (FAO): "Timber harvesting is gradually shifting from forests undisturbed by humans to semi natural (second-growth) forests (where human disturbance is evident), plantations and trees outside forests". The shift has already occurred in Europe, which now has mostly semi-natural forests. The FAO also reports that the area of semi-natural forests, forest plantations, and forest fallows on agricultural land is increasing worldwide.

Plantation forestry has surged in popularity over the past 20 years and now provides substantial amounts of wood in some countries. The FAO estimates that there are approximately 125 million hectares of forest plantations worldwide, which represents 3.6 percent of the world's forest resources, supplying 22 percent of the industrial roundwood and five percent of the fuelwood consumed globally.

A Canadian discussion

Throughout the Forest 2020 dialogue, several issues will be examined to ensure balanced stewardship of the forest resource. For example, there are discussions regarding possible approaches for the intensive management of some forest areas for the primary purpose of timber production, the management of other areas of the natural forest specifically for multiple benefits, and possible ways and means of increasing the conservation value of the forest. Plantation forestry, or tree farming, could be one other possible approach to diminishing the pressure on Canada's natural forests while at the same time competitively meeting the predicted increases in the global demand for wood by providing Canada with a new source of wood fibre.

Intensive forestry is considered a core element of any potential Canadian strategy—including one that might be developed through the Forest 2020 concept—for increasing the supply of wood fibre needed in order for the sector to remain competitive. Plantation forestry, or tree farming using high yield tree species, is often an element of an intensive forestry regime and is a practice being used by an increasing number of countries for producing more wood on smaller land bases while at the same time addressing matters relating to the conservation of natural forests. The FAO estimates that, given the high fibre yields of plantations, plantations could theoretically provide the total world demand for fibre from only five percent of the current global forest landbase.

In the late 1960s and early 1970s, provincial governments and industry in Canada began investing in ways to produce trees more quickly and from smaller land bases closer to wood processing centres. This research has continued, encouraged by issues such as the use of wood as an alternate fuel and the use of forest plantations as one possible means of combating global warming (trees remove carbon from the atmosphere).

To this day, however, there is no large-scale industrial use of fast-growing trees in plantations in Canada. The reason for this is not, as many assume, that a tropical climate is required to be competitive in tree farming. Climate is only one of many factors. Canada has other competitive advantages, such as its sophisticated forest and agricultural sectors, its extensive land base, its ample water resources, a highly trained workforce, and a comprehensive research capability. Canada's success in tree farming is expected to be achieved through innovation and the application of current knowledge.

Intensive forest management, including tree farms, merged with parks and conservation areas, and an integrated landscape approach to natural forest use could offer a solution to the balance being sought. Federal, provincial and territorial governments are working together to develop these ideas, and the dialogue with Canadians is continuing.

Additional information on Forest 2020 is available at http://www.ccfm.org/forest2020

Forest Management Practices in Canada

as an International Trade Issue

Beginning in 1998, the then House of Commons Standing Committee on Natural Resources and Government Operations undertook to study the issues at stake in connection with the forestry practices used in Canada, particularly in mid-coastal British Columbia, within the context of the international export of Canadian forest products. The Standing Committee tabled an interim report on its findings in June 1999, in which it made two recommendations and expressed its intention to broaden its study to other forest regions of Canada.

The Standing Committee tabled its final report on Forest Management Practices in Canada as an International Trade Issue in June 2000, in which it made 10 recommendations.

As result of the dissolution of Parliament in October 2000 (because of the election), and the requisite striking of a new Standing Committee in January 2001, this former Standing Committee was replaced with the new House of Commons Standing Committee on Aboriginal Affairs, Northern Development and Natural Resources. In May 2001, this new Standing Committee adopted the final report of the former Standing Committee and requested a federal government response to the recommendations contained in it.

Of the 10 recommendations in the final report, five pertained directly to the certification of Canadian forestry practices and forest products. The remaining five addressed related subjects.

With regard to certification, the Standing Committee found that there should be several recognized (forest) certification systems, each respecting principles of openness, transparency, accountability and equity. The Standing Committee also suggested a role for governments in: monitoring certification systems and encouraging the training of certifiers; maintaining the policy-making and regulatory functions of governments and international institutions; and, promoting mutual recognition among certification systems internationally.

The Standing Committee also emphasized: the need for forest management to be governed by sound scientific principles; more active marketing of Canadian scientific expertise in forest management; the importance of reporting on Canada's forests and forestry practices; involving people who live and work in Canada's forests in delivering accurate information to the marketplace; and the need for rigour in both ensuring that international trade rules are respected and in avoiding the erection of non-tariff trade barriers.

The federal government will be responding to the Standing Committee's recommendations later in 2001.

The final report of the Standing Committee is available in the Committee Business section (of the 36th Parliament, 2nd session) of Canada's Parliamentary Internet site at http://www.parl.gc.ca

Forest Certification

Forest certification is a market-based instrument aimed at promoting sustainable forest management. It involves the independent verification of forest management practices against an established standard. Successful certification allows companies to claim that their products come from sustainably managed forests. It may also offer them the option of using a label on their forest products, depending on the system.

The interest in certified forest products is a recent but growing marketplace reality, especially in Europe and the United States, which are two of Canada's key markets for forest products. Recognizing the apparent growing demand for certified forest products, certification systems have been developed and implemented by most countries who produce forest products

In Canada, as of April 2001, roughly 44 million hectares, or 37 percent, of Canada's 119 million hectares of managed forest land had been certified under one or more of the four main certifications systems currently in use in Canada: those of the Canadian Standards Association (CSA), Forest Stewardship Council (FSC), Organization for International Standardization (ISO) and the Sustainable Forestry Initiative (SFI). This area of certified Canadian forest is almost three times larger than that of the same time a year ago (see *The State of Canada's Forests 1999-2000*, page 11).

At a global scale, the Food and Agriculture Organization (FAO) of the United Nations estimates that there are close to 100 million hectares of forest land certified, mostly in developed countries, and that some 50 different certification schemes are either currently available or in the process of being implemented around the world.

This current multiplicity of certification systems in the global marketplace is a reflection of the early stages of certification as a market-based tool to promote sustainable forest management. While in the future some certification systems may prove to be more efficient than others from either the global or local perspective, there is no current reason to believe that one approach is best. This multiplicity is also a reflection of the diversity of forest circumstances which exist worldwide—forest circumstances are highly diverse because of environmental, developmental, economic, social and cultural differences.

While it would appear that this growth in the number of systems is important to maximize efficiency of certification in promoting sustainable forest management, it has also led to some debate between the various system supporters not only on the comparability between systems but also on the value of having such a multiplicity of systems. Potential market confusion is an issue.

ON THE GROUND PROGRESS IN CERTIFICATION HAS BEEN SIGNIFICANT IN CANADA, PARTICULARLY WITH REGARD TO THE CSA, ISO AND SFI SYSTEMS.

CSA: (5 million ha) Developing options for 'chain of custody' (a system linking the final product to the originating certified forest) and labelling;

FSC: (36 000 ha) Efforts are being made to develop regional standards in all Canadian regions;

ISO: (44 million ha) ISO certification is seen by many Canadian companies as providing the necessary framework for forestry-specific systems such as CSA, FSC and SFI; and,

SFI: (4 million ha) SFI, developed by the American Forest & Paper Association, is new to Canada. SFI has been widely adopted by large companies in the United States.

Sources: Canadian Sustainable Forestry Coalition (http://www.sfms.com/) and Forest Stewardship Council international Internet site (http://www.fscoax.org)

This debate is resulting in pressure on the marketplace, particularly from retailers and producers, to come to agreement on acceptable approaches to certification. Increasingly, it is being suggested that equivalency and mutual recognition frameworks which recognize differences between certification systems could contribute to solving some of the issues at hand by bringing clarity to the marketplace, while at the same time ensuring that the diversity of forest circumstances is recognized. However, while many would agree on the need for some framework of equivalency across certification systems, views are quite divergent regarding how such a framework might be implemented.

It is still too early to objectively assess the potential impact that certification will have on promoting sustainable forest management. However, looking at producers' current efforts in forest certification, it is expected that there will be significantly more certified forest areas in the months and years to come under the various existing systems, both domestically and internationally. This anticipated trend can be expected to increase the pressure to achieve some agreement on issues related to the multiplicity and comparability of certification systems.

Should equivalency and mutual recognition approaches not succeed, there is a risk that the potential efficiency of certification in promoting sustainable forest management may be affected as only a few systems might prevail, reducing opportunities for each producer's circumstances to be fully taken into account and raising potential trade issues and market confusion. Recent trends suggest that retailers will be key players in resolving these issues as they are increasingly involved in comparability and equivalency initiatives.

Forest Sustainability in Action Across Canada

A Mid-Term Evaluation of Canada's National Forest Strategy (1998-2003)

Canada needs to examine the representativeness of protected areas and to establish benchmarks for measuring the impacts of forest management practices on biodiversity; to undertake additional assessments and communications of the benefits of public participation in decision making; to pursue further opportunities for Aboriginal peoples' training, employment and business ventures; to take actions that will ensure a secure land base for Canada's forest industries and that will enhance industrial investment; and, to increase the implementation of economic diversification strategies for forest-dependent communities. Three years into the National Forest Strategy (1998-2003), these are some key recommendations made by an Independent Expert Evaluation Panel. They are published in *A Mid-Term Evaluation of the National Forest Strategy (1998-2003)–Sustainable Forests: A Canadian Commitment.*

The evaluation meets the commitment made by the Canadian Council of Forest Ministers (CCFM), as public trustee of the National Forest Strategy, and by the National Forest Strategy Coalition to formally evaluate the efforts of the Canadian forest community as a whole by an independent third party.

Overall, the independent Panel's *Mid-Term Evaluation* report, on 39 of the Strategy's 121 commitments, concludes that Canada is increasing its attention to multiple forest values and records substantial progress in monitoring and evaluating management outcomes and in developing value-added manufacturing, improving productivity, ensuring market access and developing certification systems.

The Panel also identifies some key accomplishments of Canada's diverse forest community, brought together in the National Forest Strategy Coalition's recently released *Canadian Accomplishments: Our Evolving Journey Toward Sustainable Forests* report. It showcases some of the achievements by over 50 government and non government organizations working to advance the goal and the collective vision of Canadians toward sustainable forests nationwide. For example, the expansion made to our nation's parks and protected areas; the progress that has been made in certifying our managed forests; and the expansion of Canada's model forest network to 11 model forests.

"When you look at these achievements, you realize that, if all forests were managed as well as Canada's, the world's forests would be in pretty good shape," said National Forest Strategy Coalition Chair, Mike Apsey.

"Certainly, we still have room to improve, but this glimpse of our activities gives all Canadians reason to be proud. There is a strong need to continue to work together, to broaden partnerships, and to communicate our work in Canada and abroad," he added.

The National Forest Strategy Coalition oversees the implementation of the National Forest Strategy (1998-2003) by addressing nine strategic directions: forest ecosystems, forest management, public participation, forest industry, science and technology, communities and workforce, Aboriginal peoples, private woodlots and the global view. Coalition members, who have all signed the Canada Forest Accord, are committed to actively working together to maintain and enhance forest ecosystems while providing environmental, economic, social and cultural benefits for present and future generations. This is Canada's fourth National Forest Strategy since 1981.

The recommendations contained in the *Mid-Term Evaluation* report will assist Canada's forest community, especially Coalition members, to adjust their actions to better face the challenges ahead and encourage further positive and required activity toward sustainable forests nationwide. The Coalition will ensure a final independent evaluation of the Strategy by 2003, which will aid the planned development of a new strategy.

For more information and to view these reports, visit the National Forest Strategy Coalition Internet site at http://nfsc.forest.ca

Forest-Dwelling Species **at Risk**

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent organization that uses the best scientific information available to determine the level of risk for Canada's wildlife species. In May 2001, COSEWIC released the results of its latest species assessments.

At its May meeting of wildlife experts, COSEWIC reassessed 19 species that were already on the list of Canadian Species at Risk. These reassessments were undertaken using recently developed quantitative criteria that estimate the risk of extinction built on the model used by the World Conservation Union (IUCN). Thirteen of these species remained in the same category of risk as the previous year.

The COSEWIC list now includes 380 wild species in various categories of risk, including 82 species in the Threatened category and 115 species in the Endangered category. COSEWIC began reassessing the categorization of the species at risk in 1999 and has now completed over 160 reassessments.

The degree of forest dependence of the species listed in *The State of Canada's Forests* report has not yet been scientifically determined.

A comprehensive listing of all species can be found on the COSEWIC Internet site at http://www.cosewic.gc.ca/cosewic/

Definition of COSEWIC Risk Categories

Extinct	a species that no longer exists
Extirpated	a species no longer existing in the wild in Canada, but occurring elsewhere
Endangered	a species facing imminent extirpation or extinction
Threatened	a species likely to become endangered if limiting factors are not reversed
Special Concern	a species of special concern because of characteristics that make it particularly sensitive to human activities or natural events
Not at Risk	a species that has been evaluated and found not to be at risk
Data Deficient	a species for which there is insufficient scientific information to support status designation

FOREST-DWELLING SPECIES AT RISK

MAMMALS	BIRDS	PLANTS	REPTILES	
American marten (NF*) Vancouver Island marmot (BC) Wolverine (Eastern population) (QC, NF, Labrador) Woodland caribou (Atlantic-Gaspésie population) (QC)	Acadian flycatcher (ON) Kirtland's warbler (ON) Northern spotted owl (BC) Prothonotary warbler (ON) White-headed woodpecker (BC) Western yellow-breasted chat (BC)	American ginseng (ON, QC) Bashful bulrush (ON) Blunt-lobed woodsia (ON, QC) Cucumber tree (ON) Deltoid balsamroot (BC) Drooping trillium (ON) Heart-leaved plantain (ON) Large whorled pogonia (ON) Nodding pogonia (ON) Prairie lupine (BC) Purple twayblade (ON) Red mulberry (ON) Seaside centipede (lichen) (BC) Small whorled pogonia (ON) Spotted wintergreen (ON) **Tall bugbane (BC)** Wood-poppy (ON)	Blue racer (snake) (ON) **Night snake (BC)** Rocky Mountain tailed frog (BC)	Endangered
Ermine haidarum subspecies (BC) Pallid bat (BC) Wood bison (AB, BC, NT, YT) Woodland caribou (Boreal population) (AB, BC, MB, NF, NT, ON, QC, SK) Woodland caribou (Southern mountain population) (AB, BC)	Hooded warbler (ON) Marbled murrelet (BC) Queen Charlotte goshawk (BC)	American chestnut (ON) Bird's-foot violet (ON) Deerberry (ON) Goldenseal (ON) Kentucky coffee-tree (ON) **Lyall's mariposa lily (BC)** Phantom orchid (BC) **Purple sanicle (BC)** Round-leaved greenbrier (ON) **Scouler's corydalis (BC)** White wood aster (ON, QC) White-top aster (BC) Yellow montane violet (BC)	Black rat snake (ON) Blanding's turtle (NS) Eastern Massasauga rattlesnake (ON) **Jefferson salamander (ON)** Pacific giant salamander (BC)	Threatened
Eastern wolf (ON, QC) Fringed bat (BC) Gaspé shrew (NB, NS, QC) Grizzly bear (AB, BC, NT,NU, YT) Keen's long-eared bat (BC) Mountain beaver (BC) Nuttall's cottontail (BC) Southern flying squirrel (NB, NS, ON, QC) Spotted bat (BC) Wolverine (Western population) (AB, BC, MB, NT, NU, ON, SK, YT) Woodland vole (ON, QC)	Bicknell's thrush (NB, NS, QC) Cerulean warbler (ON, QC) Eastern yellow-breasted chat (ON) Flammulated owl (BC) Lewis' woodpecker (BC) Louisiana waterthrush (ON, QC) Red-headed woodpecker (MB, ON, QC, SK)	American columbo (ON) Blue ash (ON) Broad beech fern (ON, QC) Coastal wood fern (BC) Crooked-stem aster (ON) Common hop-tree (ON, QC) Dwarf hackberry (ON) False rue-anemone (ON) Green dragon (ON, QC) Oldgrowth specklebelly (lichen) (BC) Shumard oak (ON) Seaside bone (lichen) (BC) Wild hyacinth (ON)	Cœur d'Alène salamander (BC) Five-lined skink (ON) Mountain dusky salamander (QC) Northern red-legged frog (BC) Wood turtle (NB, NS, ON, QC) Cryptic paw (lichen) (BC)	Special Concern

*(Population)

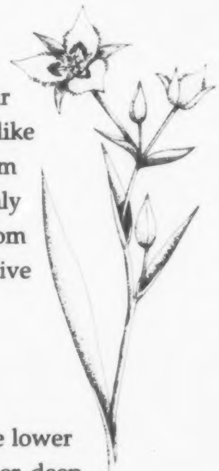
Bolding indicates species added to the list in 2001

Source: Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

Tall bugbane

The Tall bugbane is a perennial, large-leafed understorey plant that stands one to two metres tall. It has 50 to 900 small, white, closely-crowded flowers. Fruits are "follicles" and each contains approximately 10 red to purple-brown seeds. It grows in shady, moist, mixed, mature western red cedar/hemlock and Douglas-fir forest stands, but also in predominately deciduous stands. The deciduous component is extremely important, providing the perfect balance of shade and light, and moisture retention. In Canada the Tall bugbane occurs in southwestern British Columbia. There are seven known populations, ranging from one to 63 plants, which are relatively small and sporadically distributed over the landscape. Certain forest harvesting practices may impact the survival of this species. The Tall bugbane was classified by COSEWIC as "endangered".

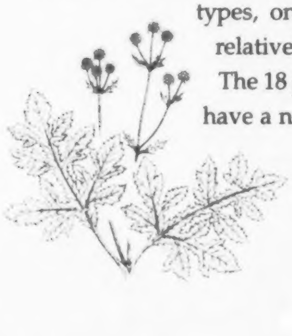
Lyall's mariposa lily



Lyall's mariposa lily is a long-lived perennial with white to purplish petals, arising each year from an underground bulb and reproducing solely by seed. It occurs in open grass-like meadows in Douglas-fir forests along the eastern slope of the Cascade Mountains from extreme south central British Columbia to Yakima County, Washington. In view of the highly restricted geographical range (there are 11 known colonies in Canada) it is at potential risk from habitat disruption and loss due to grazing, aforestation of potential habitats and exotic/invasive species. Lyall's mariposa lily was classified by COSEWIC as "threatened".

Purple sanicle

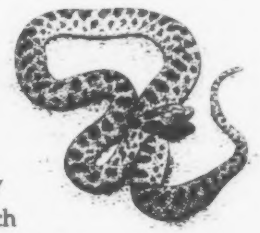
The Purple sanicle is a short-lived perennial (some say biennial) herb. The leaves are on the lower stem and resemble a feather. Flowers are tiny, inconspicuous and unspecialized and either deep purple or wine-coloured. Flowering occurs by the beginning of May and may continue to the end of June. The fruits are dry and split into several one-seeded "carpels" when mature. They are egg-shaped and covered by stout, hooked prickles. The Purple sanicle occurs in grass-like meadow openings in certain forest types, on eroding, sandy banks on seashore cliffs, and on shrubby grassy knolls. It is relatively shade intolerant, occurring on very dry to moderately dry, nitrogen-rich soils. The 18 populations of this species, ranging in size from one plant to over 1 100 individuals, have a narrow range in Canada, occurring only on southeastern Vancouver Island and the Gulf Islands. Populations of the Purple sanicle are mainly limited by human disturbance. The Purple sanicle was classified by COSEWIC as "threatened".



Scouler's corydalis

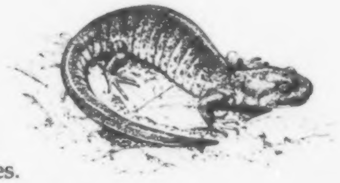
Scouler's corydalis is a perennial herb with blue-green, large dissected leaves and rosy-pink, bilaterally symmetrical flowers that grow on short stalks. The Canadian populations are limited to 20 sites within a restricted geographical range in south-western Vancouver Island. It occurs in wet, cool habitats associated with water-courses. There are logging operations in the areas where Scouler's corydalis is found. Erosional damage from flooding is also a limiting factor. Scouler's corydalis was classified by COSEWIC as "threatened".

Night snake



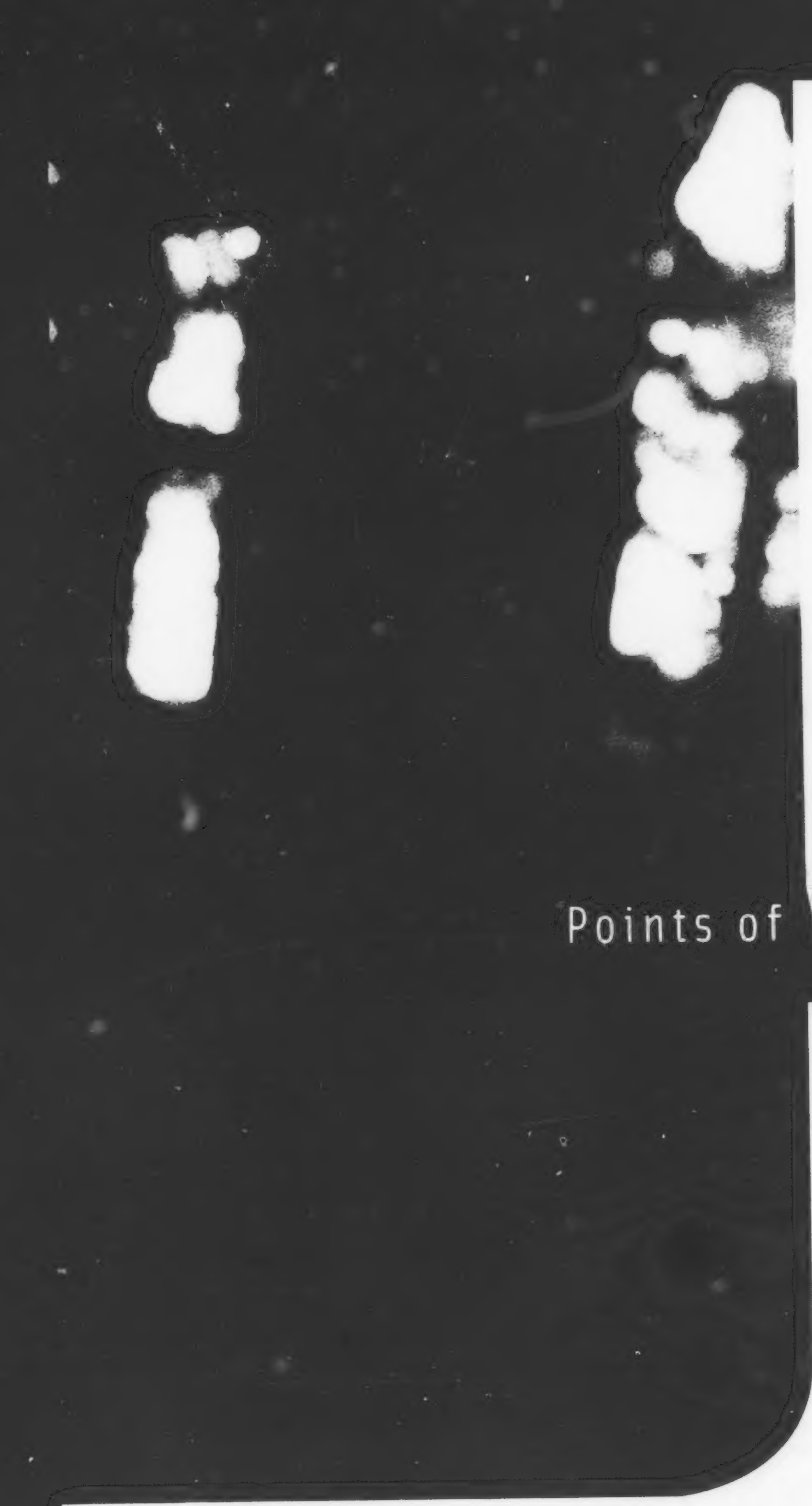
The Night snake is a small, rear-fanged snake. In Canada, it is found only in the hot, dry interior of British Columbia, where only 16 individuals have been recorded. Most of these were mature snakes from areas with rocks, shrubs and grasses. The only known food item for the Night snake in Canada is a neonate rattlesnake, although lizards, squamate eggs, frogs and snakes are eaten by populations outside Canada. This species produces eggs that develop and hatch outside the maternal body and the female lays three to nine eggs. Night snakes in British Columbia can live at least four to five years. Despite intensive and frequent search they have rarely been found and appear to be confined to habitat that is rapidly disappearing in Canada. The Night snake was classified by COSEWIC as "endangered".

Jefferson salamander



The Jefferson salamander occurs in southern Ontario and is associated with mature, usually Carolinian forests where there are ponds which provide breeding sites. Eggs are laid on stems of submerged vegetation following an elaborate courting ritual between the males and females. Factors influencing the survival of both the embryos and larvae of the salamander include low water levels, pond pH, the presence of invertebrate predators, and cannibalism. Although surviving adults tend to live a long time, there are high levels of mortality among adults crossing roads while migrating from underground overwintering sites to their breeding ponds. This factor probably has a large effect on population size. The Jefferson salamander was classified by COSEWIC, in November 2000, as "threatened".

A photographer captures images [illegible] an upcoming publication.



Points of View

Points of View

"Is Canada, as a country, managing its forests sustainably?"

Since the early 1990s, Canada has been vigorously pursuing sustainable forest management supported by the efforts of government, industry and forest-related groups and organizations. Our nation's progress toward this goal of sustainability has been the topic of many debates, both at home and abroad. These debates are fuelled by a variety of opinions–some fact-based and others more driven by perception or emotion. Others are based on individuals' familiarity with the mostly second- and third-growth forests predominant in areas such as Europe, rather than on Canada's unique circumstances–vast and mostly natural forests spanning many ecozones.

Our interviewees for this Points of View section were chosen in an effort to be representative of a broad spectrum of interests, knowledge and opinions. In reading the following interview summaries, it becomes apparent that opinions on whether Canada is progressing rapidly enough toward sustainable forest management are indeed varied and even opposing. Despite this diversity however, there is consensus within the interviewees that sustainability means more than growing and harvesting trees. Biodiversity, wildlife

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Material contained in Points of View does not necessarily reflect the views and policies of the federal government.

conservation, the needs of forest-dependent communities, global market competition, etc. must all be factored into any measurement of sustainability.

This diverse group generally agreed that Canada is moving toward sustainable forest management, although some suggest that Canada is not sustainably managing all its forests at this time. The interviewees also collectively called for agreement on the definition of sustainable forest management–a call which is consistent with Canada's continuing efforts to have an international convention on forests which would establish such a definition. But above all, the group identified a need for more information regarding Canada's forests and forest management activities and for continuing transparency in all actions, policies and decisions on forest management. The results should also be communicated to the public in a language it can understand.

The summary presented below expands on these solicited opinions and provides valuable insight into the varying perceptions which exist regarding Canada's progress toward sustainable forest management–be they based on factual information or personal experience and be they from the familiar domestic perspective or the less familiar international perspective.

The opinions expressed are, in each case, those of the interviewee and may not accurately reflect the policy positions and most recent initiatives of federal, provincial and territorial governments.

Dr. Eric de Munck is project leader of Environmental Affairs for Centrum Hout (the Dutch "Timber Information Centre") which provides information to Dutch buyers of forest products.

Is Canada managing its forests sustainably? Yes and no, according to Eric de Munck. It depends on how sustainability is defined. However, Canada is heading in the right direction, when one looks at the progress that has been made, he observed.

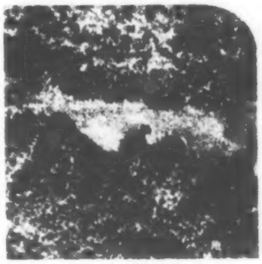
A forestry engineer, Dr. de Munck has seen significant change in Canadian forest management practices since visiting Canada in 1998, when he toured forestry operations in British Columbia, Quebec and Nova Scotia.

> ***"What struck him, as it does many other European foresters, is the immense size of Canadian forests, the many different forest types, plant species and ecological zones covered by these forests."***

What struck him, as it does many other European foresters, is the immense size of Canadian forests, the many different forest types, plant species and ecological zones covered by these forests. For any forestry professional, he says, this array presents "a totally different perspective of forest management, requiring different approaches than in Europe." He believes that in some ecological zones, clearcutting could be sustainable. However, in other forests, small group felling or even single tree felling might be a better option. He understands that the Canadian forest industry is looking at these techniques as possibly new ways to manage some forests.

He has followed the developments supported by Canadian governments, through forest practices codes, different logging operations, changed forestry practices, and a real effort by the forest industry to improve forest management systems. "I have been especially impressed by the way Canadians are dealing with the new concept of sustainable forest management coupled with certification, and the way Canadians are trying to implement several certification systems."

However, he believes that the inventory of Canada's total forest area needs to be improved. For example, he hopes that in addition to using aerial photos and satellites to collect data, that it is also collected "on the ground" more thoroughly and will include not only volume and species but also ecological values. Having this expanded range of information is important if policies and practices are to be based on this data. In fact, Dr. de Munck finds it significant that Canada is still focusing on volume instead of on added-value products. "Industry needs to change its course a little to do this, which I understand some companies are beginning to do."



He believes that the international criticism of clearcutting is overdone, because the people criticizing it, in his opinion, do not usually understand what forestry is and in which ecologically appropriate settings clearcutting can be done.

He is quite impressed by the amount of available information on the progress of Canadian forest operations, but would like to see more information and statistics on the things the general public finds important.

As well, Dr. de Munck is especially impressed by the openness of the Canadian forest industry and governments about what is being done and what progress has been made toward sustainable forest management. He hopes Canadians continue to maintain this openness.

Sven-Erik Jansson is an outfitter in Alberta who has participated in a number of forest certification audits, forest-related task forces, committees and public consultations.

At any given time, according to Mr. Jansson, a forestry expert could say that based on reforestation numbers and yield curves, we are harvesting at sustainable levels. However, particularly in Alberta, other land uses have increased over the years, most notably by the oil and gas industry. Mr. Jansson suggests that the productive forest landbase is shrinking from encroachment at an alarming rate.

If we assume that we now have sustainable harvests, we certainly do not have sustainable forests, and we have an ongoing loss of ecological integrity. " But I don't believe that, given the direction in which we are going, harvest levels are sustainable in the long run either. If an enhanced yield can be created and maintained through silvicultural activities, it will be at the expense of biodiversity." Sustainability means so much more than harvesting trees. It also includes other uses: wildlife, recreation, mushroom and berry picking, trapping and hunting and so on. He doesn't believe it is realistic that Canada will be able to maintain all these forest values over time.

Mr. Jansson believes that criticisms of our forest practices were stronger 10 years ago than they are today. Most of the criticisms focused on clearcutting huge tracts of forested land. He labels this type of criticism simplistic because it is based on visual impressions rather than on what was really wrong with clearcutting. "We should not be looking just at what we're taking away, but we should also look at what we leave. Industry is adjusting to that. Cutblock planning, retention of structure and understory protection is quite different today than it was 10 years ago." The Canadian forest industry is good at adaptive management. This has evolved from a healthy cooperation between science, industry and the public. Canadians are prepared to adopt the latest science. As well, many more people now have input through various public forums. All this has helped, he notes, not only to change operations, but also to improve the image and understanding of forestry in general.

> ***"We as a society are responsible for how much we are using the resource."***

We should be careful, Mr. Jansson continues, when criticizing forest companies. They do not cut for fun, but to satisfy a market demand. We as a society are responsible for how much we are using the resource. Society's expectations may change and increase, but the industry seems to be criticized for whatever it does. Forest rotations mean cycles of 50 to 100 years, and during that time society often changes its values and scientists change their opinions. We need to talk about and explain adaptive management in a way so the public can understand the balance between economic expectations and environmental consequences. The debates should not focus on *if* forestry should occur, but rather on *how* it should be done and to what extent.

> ***"The Canadian forest industry is good at adaptive management. This has evolved from a healthy cooperation between science, industry and the public. "***

To that effect, both governments and forest companies need to demonstrate that they are working a little closer together and with the public and that they are operating more transparently than in the past. Some companies are still leery of opening their doors to the public, but if they demonstrate transparency, for example, by promoting certification and cooperation between all groups, then Canada can show the rest of the world that we are trying to do the best we can with the tools we have.

We should, however, be careful in promoting Canadian practices as sustainable. "I'm not so sure we are, because it depends how we define sustainable." Mr. Jansson believes the best assurance we can give is that we are as sustainable as we can be.

Dr. Christian Mersmann is the Director of the Programme on Forests of the United Nations Development Programme. He is also an advisor to German federal ministries on forest matters. In these capacities, Dr. Mersmann has been involved in forest issues at the national level in Europe as well as in development cooperation at the international level for the UN Intergovernmental Panel/Forum on Forests and international forest-related organizations.

Dr. Mersmann believes that in the recent past Canada has developed the necessary political will to manage its forests sustainably. However, he notes that no other country in the world has achieved a high degree of sustainable forest management and that some efforts, such as the Montréal Process, have not yet met expectations.

Canada is moving toward sustainability on three fronts: on-the-ground changes in forest management practices; changes in policies and legislation, including the question of decentralized decision making, which, he feels, is an established and well-working process in Canada; and Canada's involvement and participation in major global forest-related policy processes.

One of the major factors influencing Canada's progress is the strong competition in the global timber and forest products market. The increased (short-term) costs that accompany sustainable forest management have hindered Canada from making large advances in sustainable forest management. "Looking at sustainability in terms of 'goods and services' of the forest other than timber, for example, environmental services, biodiversity, landscape beauty and tourism, etc., we know that they all need to be paid for. If there isn't an international level playing ground for what criteria and indicators mean for operations, one can understand that Canada is cautious to move forward to sustainable forest management at any cost."

There is confusion outside Canada about exactly what advances Canada has made. Over the past 10 years, for example, Canada has invited foreign experts, from Europe particularly, to observe its sustainable forest management. However, some visiting forestry experts have described stopping in a forest, walking though a forest corridor and suddenly looking into a huge clearcut—a size never seen in Europe. The visitor feels cheated and doubts Canada's claims of new and more progressive approaches to sustainable forest management.

As well, foreign observers are confused by conflicting claims made by the forest industry, First Nations, and environmental and other major groups. Canada says it has a broad participatory process and the instruments to involve major groups, but Canadian non governmental organizations (NGOs) continue to claim that it does not involve them sufficiently or listen to public opinion. Canada could learn from other countries with similar forest conditions, such as Sweden and Finland, about how they have increasingly involved major stakeholders and communicated their sustainable forest management practices to the public.

> ***"Foreign observers are confused by conflicting claims made by the forest industry and First Nations, environmental and other major groups."***

Public participation could be done in a different and less confrontational way to draw in NGOs and increase their responsibility in the process. "It is quite obvious to an outsider that a more effective societal process needs to be in place in Canada. The forest industry is trying hard, but has not succeeded yet in swaying public opinion." For example, Dr. Mersmann singles out the Model Forest concept, which some call "an island in a sea of destruction". "Why didn't Canada declare Vancouver Island a huge model forest? I know it is expensive and difficult. However, it would have been excellent public relations at national as well as international levels."

Considering Canada's very constructive leadership role at the international level in forest-related forums, Canada should engage more visibly and strongly in international development cooperation, making sustainable forestry expertise available to developing countries. Canadian international development efforts in forestry should help define the contribution of forests to overarching agendas like sustainable development and poverty alleviation. Dr. Mersmann concludes: "We do move toward more sustainable practices through new partnerships between the North and the South and Canada should be an important partner—both at international and national levels."

Arlin Hackman, Vice President, Conservation, at World Wildlife Fund Canada, is a geographer, has worked in conservation for over 20 years, and coordinated WWF's Endangered Spaces Campaign during the 1990s.

Mr. Hackman does not believe Canada is presently managing its forests sustainably. "We have not shown that we can sustain, over time, the suite of forest values Canadians hold dear," he said. "Instead, we have treated our forests as a 'wood basket', establishing industrial and manufacturing demand for wood, committing woodlands to meet that demand, and only then trying to come to terms with all the other economic, social and ecological values." We often fail to replace what we extract in equal measure, changing the forest in ways that do not leave an environment as rich as the one we originally inherited.

"Canada should show where we're doing well and talk about how to make these sustainable practices more widespread."

Noting that no one has a simple, proven formula for ecological sustainability, he believes Canada is conducting a big experiment in the forest. "We are groping toward sustainability. As noted by the Independent Expert Evaluation Panel on Canada's National Forest Strategy, we are making headway in different ways, in different regions, at different speeds. But more scientific rigour is needed. In most regions we're still cutting the 'original' forest without an experimental design to ensure effective learning, or management discipline to ensure that such learning and adaptive management actually guide us."

Control areas are necessary for an experimental design model. In this case, we need to maintain examples of all forest types and regions in undisturbed conditions, as ecological benchmarks, in order to compare natural evolution to changes in the managed landscape. "Canada is officially committed to establishing a network of ecologically representative protected areas. However, actually completing such a network is proving difficult. This is a litmus test about how fast we are moving toward sustainability. We have moved significantly in the last decade. We aren't, however, close to the target and we are losing opportunities to complete that network."

He says that land use planning should help alleviate this problem but that it often is 'too little, too late'. "Though there are some good efforts, by now as a forest nation we should be far better and faster in completing land use planning before logging licences are awarded or renewed."

Mr. Hackman believes Canadians are pretty good at some management practices, especially at the stand level. However, from a conservation viewpoint, he says "we must recognize the importance of scale, that not all forest management questions concern the spatial scale of the stand level, or the temporal scale of the business cycle. There are multiple scales that we are learning about. Some of the toughest issues and decisions occur at the landscape or regional scale over generations. How to maintain viable populations of woodland caribou throughout the boreal forest is only one example, and thus far we're losing."

He is encouraged by the example of the Great Lakes–St. Lawrence forest region, as well as parts of Vancouver Island such as Clayoquot Sound, where efforts to establish sustainable forest management practices are leading to some areas becoming independently certified as "well-managed".

"As noted by the Independent Expert Evaluation Panel on Canada's National Forest Strategy, we are making headway in different ways, in different regions, at different speeds."

Mr. Hackman agrees with some international criticisms and not with others. "We are still clearcutting too much across Canada. We also claim Canada can sustainably produce much more wood to meet world demand, but then say wood supplies are too tight to permit new protected areas." At the same time, he notes that some criticism is unfounded because it's not well informed, is too sweeping or simply unconstructive.

In future, he says "Canada should show where we're doing well and talk about how to make these sustainable practices more widespread. We should embrace the greening marketplace and be ready to meet the needs of our most demanding customers. One thing is certain. We are in a race against time. We are rapidly changing the forest without really knowing what the consequences will be. Our generation needs to set some limits and manage within them, extracting more value from less volume."

Gordon Stone, President of the Canadian Institute of Forestry, has been a forester for over 40 years.

For Mr. Stone, sustainable forest management is a continuously evolving process. However, because some people only look at the end product—the harvested forest—he feels Canada will not ever be seen to have reached the goal of sustainable forests across the nation. He emphasizes that "we must learn how to focus on the process and not on the end result. When we focus on the process, I think it shows that we are managing our forests sustainably."

Mr. Stone's long-range view of forest management is based on an ecological perspective that includes humans as part of forest ecosystems. "For too long, we have been on the outside looking in. There is a universal life force—call it energy—that is present in every ecosystem, and that includes all living and non-living components. The forest ecosystem is dynamic, with a continuous flow of energy at all levels of existence. There is energy in everything, everything is surrounded by energy. As an integral part of forest ecosystems, we need to get in touch with this energy to understand how to properly manage our forests." Viewing the forest landscape and the humans in it as an interconnected whole is the basis of how Aboriginal peoples have perceived nature for generations—a world view that is reflected in their traditional ecological knowledge (TEK). Mr. Stone believes if we are going to manage our forests sustainably, we must integrate TEK into our scientific knowledge.

"We are no longer hewers of wood, we are highly trained forest practitioners."

In Mr. Stone's opinion a lot of the criticism of Canadian forest practices is based on aesthetics. The problem, he notes, is that the forest community has not explained forestry practices in terms the public can understand. Canadians, however, have been entrusted to be responsible stewards of the land, and want to be part of the decision-making process. "We need to do continuous education in a language that everyone can understand. We need to educate the public that the forest is a complex system, that the only constant in the forest is change." People often do not understand the silvicultural requirements of a plant species or a forest-dependent animal; for example, jack pine, woodland caribou and Kirtland's warbler require clearcuts to survive. People, he explains further, need to understand ecological process to understand that we cannot preserve old-growth forests simply by fencing them off. The forest does stop growing—it falls down and dies or becomes susceptible to disease and fire. Habitat requirements are unique and must be addressed separately.

In the past, some forest companies clearcut vast tracts of land and were especially criticized for it. "However, we are no longer hewers of wood, we are highly trained forest practitioners." Mr. Stone continues: like forest ecosystems, sustainable forest management practices evolve. What we do need to do is to manage our forests on a much broader scale that includes entire landscapes and that is based on a full understanding of the ecological processes of that landscape. "I believe we are constantly learning. We continually improve how we manage forest ecosystems. However, it takes time to grow a forest."

The public, he feels, needs to be an informed public. The public needs to learn all they can about sustainable forest management, look at what the forest industry is actually doing, and then decide whether their criticism is valid and knowledgeable. "Part of the problem is that people expect a quick solution for very complex situations. This is not realistic."

He believes Canadians are known internationally for advancing the yardstick and continuously moving toward sustainable forest management. "Leaders are always criticized. We are not going to please everyone, but we must continue to set the example."

Mr. Stone concludes we must continue to be leaders and continue the dialogue among industry, the public and environmentalists. It is a huge challenge to maintain the partnerships necessary to advance toward sustainable forest management. Above all, he says, we need to build partnerships with the land.

Tamara Stark, Forest Campaign Coordinator, Greenpeace Canada, for seven years has been responsible for overseeing the organization's work on forest issues as well as managing forest campaigns.

Canada is not managing its forests sustainably, according to Tamara Stark. She estimates that across Canada in any forestry jurisdiction, the level of logging—the annual allowable cut—is far higher than what governments themselves estimate to be a long-term sustainable harvest level. This being the case, the level of cut set by provincial chief foresters thus implies that to meet these harvest levels, we will liquidate our old growth and convert the commercial forest base into second- or third-growth ecosystems. At this rate Canada will not be able to protect the biodiversity of any of our forest types in the long term.

In Ms. Stark's opinion, another blow to sustainability is that the federal government and many provincial governments have failed to introduce effective endangered species legislation. She also claims that every year, provincial government reports show rapidly decreasing numbers of species and that little is being done to safeguard species' habitats. For example, effective riparian zone management has not been adopted that would secure habitats where species are at risk, such as the salmon habitats in British Columbia. The Pacific Fisheries Resource Conservation Council, a government agency, has recommended that logging not occur in old-growth forests on British Columbia's central coast because salmon stocks are declining in the rivers running through these areas. "Although it is a respected agency, we don't see governments acting to endorse or adopt those kinds of regulations. This is a prime example of 'disconnect' between the academic bodies within government and the political level of action implementing recommendations." Ironically, Canada was one of the first nations to ratify the biodiversity convention. "If we cannot sufficiently act to protect wildlife and biodiversity, then there is no possibility that other countries will do so. We have a responsibility and opportunity to become a world leader that shows the way forward to protecting the health of the planet for future generations."

"We are producing the best timber quality in the world, but are shipping it elsewhere to be manufactured into finished products."

Ms. Stark also suggests that the economic aspect of sustainable forest management is under threat as we move from a nation reliant on the logging industry to a more diverse economy. However, Canadians are still managing the forests as if they were tree farm licences or as a timber resource rather than looking at the broader array of criteria and indicators that can lead to a healthier economic picture in the future. Nor are we sufficiently investing in value-added manufacturing or diversifying rural communities. "We are producing the best quality timber in the world, but are shipping it elsewhere to be manufactured into finished products. This is a contradiction of what Canada needs to prosper."

However, Ms. Stark sees some positive movement toward sustainable forest management. She feels there is growing recognition by politicians and other decision makers that species truly are at risk, but says that this recognition is not being supported by strong actions. As well, there is now more official recognition that some of our larger national parks have failed to protect endangered species.

Another positive sign that supports sustainable forest management is that unlike the US, the Canadian forest industry is not heavily reliant on genetically modified trees. "We need to safeguard this." As well, some forest companies are increasingly interested in accepting independent certification, in particular by certification systems such as that of the Forest Stewardship Council.

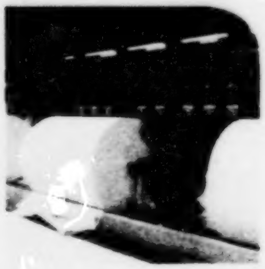
Given next year is the tenth anniversary of the Rio Earth Summit and the tenth anniversary of the Convention on Biological Diversity, this would be an opportunity for Canada to play more of a leadership role both in conservation initiatives and in defining what sustainable logging practices are.

Ms. Stark concludes by noting the best thing Canada can do to demonstrate its commitment to move closer toward sustainable forest management is to be honest about our failings—what we have done wrong—and then take significant steps to address these issues.

Dr. Noriyuki Kobayashi is the General Manager of the environmental research and development division of Sumitomo Forestry Co., Ltd., based in Tokyo, Japan.

Dr. Kobayashi believes Canada is managing its forests sustainably. He bases his opinions on his latest visit to Canada in July 2000 as part of an International Forest Partnership Program (IFPP) tour of Canadian forest operations in British Columbia, Alberta and Quebec, sponsored by the federal, provincial and territorial governments. On that trip he spoke with government officials, NGOs and Canadians concerned about their forests. He also keeps in touch with his company's Canadian customers and he is well aware of the latest research and programs supporting sustainable forest management.

He feels supporting policy is well established and sustainable forest management practices are being implemented. He singled out British Columbia's Forest Practice Code as a good example of Canada's move toward sustainable forest management. Most of the top management in Canadian forest companies have a good understanding of the importance of environmental issues and have incorporated this understanding into their company's business strategies. As well, the environmental departments in many of these companies are making sincere efforts to discuss the issues with environmental groups. Overall, forestry practices have improved: there is less clearcutting, more reforestation and more attention to First Nations concerns.



Dr. Kobayashi does not agree with all criticism made by environmental groups about Canadian forest practices. Some environmental groups do not listen enough; some do not like to participate in dialogue; and some insist only on their own opinions. Often criticism is based on misunderstandings and on the concepts of clearcutting and preserving old-growth forests. However, he notes that the definitions of these two concepts are not clear. Scientists and researchers themselves have not agreed on the definitions. "We don't know what size of clearcut—one, five, or 10 hectares—is best and how each size will affect the environment."

As for old growth, he notes that the last time he was in British Columbia, he visited some forests that were logged 70-100 years ago. Today, through natural regeneration, they look like natural forests. The government was going to open these forests to be logged. However, environmentalists say this is old growth and cannot be cut. He would like to see Canadians agree on the definitions of the two terms in order to stop the arguments between industry and environmental groups.

"Often criticism is based on misunderstandings and on the concepts of clearcutting and preserving old-growth forests."

Canada is the most advanced country in the world regarding certification systems. "The policy of the Canadian government is good because it strongly supports market-oriented policy and prefers the existence of many certification systems." Some Canadian companies can be praised for achieving ISO 14001 environmental management certification. He also hopes that not only will the ISO 14001 continue to improve, but that environmental groups would also accept these standards. He also hopes that the disputes between environmental groups and the Canadian forest industry will be resolved in Canada through such organizations, initiatives and environmental standards programs. When Canadian environmental groups take their anti-logging campaigns international and into Japan, Japanese customers of Canadian paper products are confused. "We purchase Canadian lumber products because we believe the producing company is working properly under Canada law, legislation and practices, and some under forest certification. Some Japanese paper consumers, for example small printing businesses, receive letters saying not to buy Canadian lumber products. These customers say don't give us the problem, the matter is for Canadians to resolve."

"Japanese customers are becoming more interested in environmental issues than before and need more information to make informed purchasing decisions."

Dr. Kobayashi would like more information about Canadian forest practices from all viewpoints available in Japan for the end user—either on special Web sites, in the newspapers or on television. Japanese customers are becoming more interested in environmental issues than before and need more information to make informed purchasing decisions.

Dr. Kobayashi concludes by thanking Canada for the opportunity to visit its forests through the IFPP, where he said he learned very much. In fact, Sumitomo Forest Co., Ltd., has begun an exchange program between its foresters and those in Canada.

Contacts

The following organizations are able to provide information about Canada's forest resources and the forest sector.

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Canadian Institute of Forestry

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Council of Forest Industries

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Government of Alberta

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Government of British Columbia

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Glossary

Aboriginal land
Lands within Aboriginal reserves or Aboriginal settlements.

Afforestation
The establishment of a tree crop on an area from which it has always or very long been absent.

Age class
A distinct group of trees or portion of growing stock recognized on the basis of age.

Biodiversity
The total variability of life on Earth, including the diversity of genes, species and ecosystems.

Biosphere
That part of the earth and atmosphere capable of supporting living organisms.

Biotechnology
Development of products by a biological process. Production may be carried out by using intact organisms (e.g., yeasts and bacteria) or by using natural substances (e.g., enzymes) from organisms.

Boreal forest
One of three main forest zones in the world (see also tropical forest, temperate forest); it is located in northern regions and is characterized by the predominance of conifers.

Carbon dioxide (CO_2)
A colourless, odourless, non-combustible gas. Humans and all other living organisms give off carbon dioxide in respiration and decomposition. Trees and other plants absorb it and use it during photosynthesis. Also emitted as a by-product of burning fossil fuels.

Carbon sequestration
The uptake and storage of carbon. Trees and plants, for example, absorb carbon dioxide, release the oxygen and store the carbon. Fossil fuels were at one time biomass and continue to store the carbon until burned.

Clearcutting
A forest management method that involves the complete felling and removal of a stand of trees. Clearcutting may be done in blocks, strips, or patches.

Climate change
An alteration in measured quantities (e.g., precipitation, temperature, radiation, wind and cloudiness) within the climate system that departs significantly from previous average conditions and is seen to endure, bringing about corresponding changes in ecosystems and socioeconomic activity.

Commercial forests
Forest land that is able to grow commercial timber within an acceptable time frame and is designated for such a purpose.

Crop tree
Any tree selected to become a component of a future commercial harvest.

Crown lands
Public land that is managed by the national or provincial/territorial government.

Deforestation
Clearing an area of forest for another long-term use.

Ecoregion
A part of an ecozone characterized by distinctive regional ecological factors, including climate, physical geography, vegetation, soil, water, fauna and land use.

Ecosystem
A dynamic system of plants, animals and other organisms, together with the non-living components of the environment, functioning as an interdependent unit.

Ecotourism
A type of tourism that focuses on nature-related experiences (e.g., whale watching).

Emissions
Waste substances released into the air or water.

Engineered wood products
A composite wood product made from glued fibre, lumber and/or veneer to meet specific design criteria.

Forest plantation/Plantation forestry/Plantation forest
Forest stands established by planting and/or seeding in the process of afforestation or reforestation which are either of introduced species (all planted stands) or intensively managed stands of indigenous species, which meet all the following criteria: one or two species at plantation, even age class, regular spacing.

Forwarder
A self-propelled machine, usually self-loading, that transports trees or logs by carrying them completely off the ground.

Fossil fuels
Oil, gas, coal and other fuels that were formed under the Earth's surface from the fossilized remains of plants and tiny animals that lived millions of years ago.

Fuelwood
Trees used for the production of firewood logs or other wood fuel.

Grapple
A handling tool suspended from the end of the boom, consisting of a downward-turned clamp that is opened to pick up the stems or logs and then closed to lift and deposit them further away.

Greenhouse effect
The warming of the Earth's atmosphere caused by increasing levels of carbon dioxide and other gases in the air, which trap the sun's heat within the atmosphere.

Greenhouse gases
Those gases, such as water vapour, carbon dioxide, tropospheric ozone, nitrous oxide, and methane, that are transparent to solar radiation but opaque to longwave radiation. Their action is similar to that of glass in a greenhouse. See also greenhouse effect.

Greenhouse gas sinks
Any process, activity or mechanism that removes greenhouse gases or their precursors from the atmosphere.
The principal natural mechanism is photosynthesis.

Greenhouse gas source
Any process or activity (e.g., forest fires or conversion of forest land to agricultural or urban uses) that releases greenhouse gases or precursors of those gases into the atmosphere. As trees and forest products decompose or burn, they release carbon in the form of carbon dioxide.

Hardwood (trees)
Broad-leaved trees; also refers to the wood produced by these trees. Hardwoods belong to the botanical group angiospermae and are the dominant type of tree in the deciduous forest.

Non-timber forest products
Any commodity obtained from the forest that does not necessitate harvesting trees.

Non-timber forest values/Non-timber benefits/Non-timber resource values
Values within the forest other than timber which include but are not limited to biological diversity, fisheries, wildlife, minerals, water quality and quantity, recreation and tourism, cultural and heritage values, and wilderness and aesthetic values.

Old-growth forests
A forest dominated by mature trees that has not been significantly influenced by human activity. The stand may contain trees of different ages and various species of vegetation.

Protected areas
A geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

Reforestation
The reestablishment of trees on denuded forest land by natural or artificial means, such as planting and seeding.

Research and development (R&D)
Set of activities directed toward improving and innovating products and processes from a technological point of view and not from a commercial point of view. Encompasses basic research, applied research and development.

Retention harvesting
A silvicultural system designed to retain individual trees or groups of trees to maintain structural diversity over the area of the cutblock.

Riparian zone/Buffer zone/Buffer strip
A strip of land maintained along a stream, lake, road, recreation site or different vegetative zone to mitigate the impacts of actions on adjacent lands, to enhance aesthetic values, or as a best management practice.

Rotation
The planned number of years between the formation or regeneration of a crop or stand and its final cutting at a specified stage or maturity.

Rutting
The resulting depressions in the soil due to the repeated passage of a logging machine's wheels at the same place.

Science and technology/S&T (forest)
Systematic activities that are closely concerned with the generation, advancement, dissemination and application of scientific and technical knowledge in all fields of science and technology, including such activities as research and development (R&D), scientific and technical education and training, and scientific and technological services.

Silviculture
The theory and practice of controlling the establishment, composition, growth and quality of forest stands. Can include basic silviculture (e.g., planting and seeding) and intensive silviculture (e.g., site rehabilitation, spacing and fertilization).

Site index
An expression of forest site quality based on the height, at a specified age, of dominant and codominant trees in a stand.

Skidder
A self-propelled logging machine with an articulated frame, used for hauling operations.

Softwood (trees)
Cone-bearing trees with needles or scale-like leaves; also refers to the wood produced by these trees. Softwoods belong to the botanical group gymnospermae and are the predominant tree type in coniferous forests.

Stand
A community of trees possessing sufficient uniformity in composition, age, arrangement, or condition to be distinguishable from the forest or other growth on adjoining areas, thus forming a silvicultural or management entity.

Stewardship
The science, art and skill of responsible and accountable management of resources.

Stumpage fee
The fee paid by an individual or company for the timber they harvest from public forests or privately owned forest land.

Sustainable forest management
Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations.

Sustained yield management
The yield that a forest can produce continuously at a given intensity of management.

Temperate forest
One of three main forest zones in the world (see also boreal forest, tropical forest). The woodland of rather mild climatic areas; composed mainly of deciduous trees.

Tree farm
A privately owned woodland in which the production of wood fibre is a primary management goal, as distinct from a tree nursery, fruit orchard, or landscape business.

Tropical forest
One of three main forest zones in the world (see also boreal forest, temperate forest). A tropical woodland with an annual rainfall of a least 250 cm; marked by broadleaved evergreen trees forming a continuous canopy.

Value-added products/value-added production
Adding value to a product by further processing it. Examples of value-added wood products include joinery stock, windows, doors, kitchen cabinets, flooring and mouldings. Value-added pulp and paper products include such items as packaging, diapers, coated papers, tissue, business papers and stationery, and other consumer paper products.

Watershed
An area of land that is drained by underground or surface streams into another stream or waterway.

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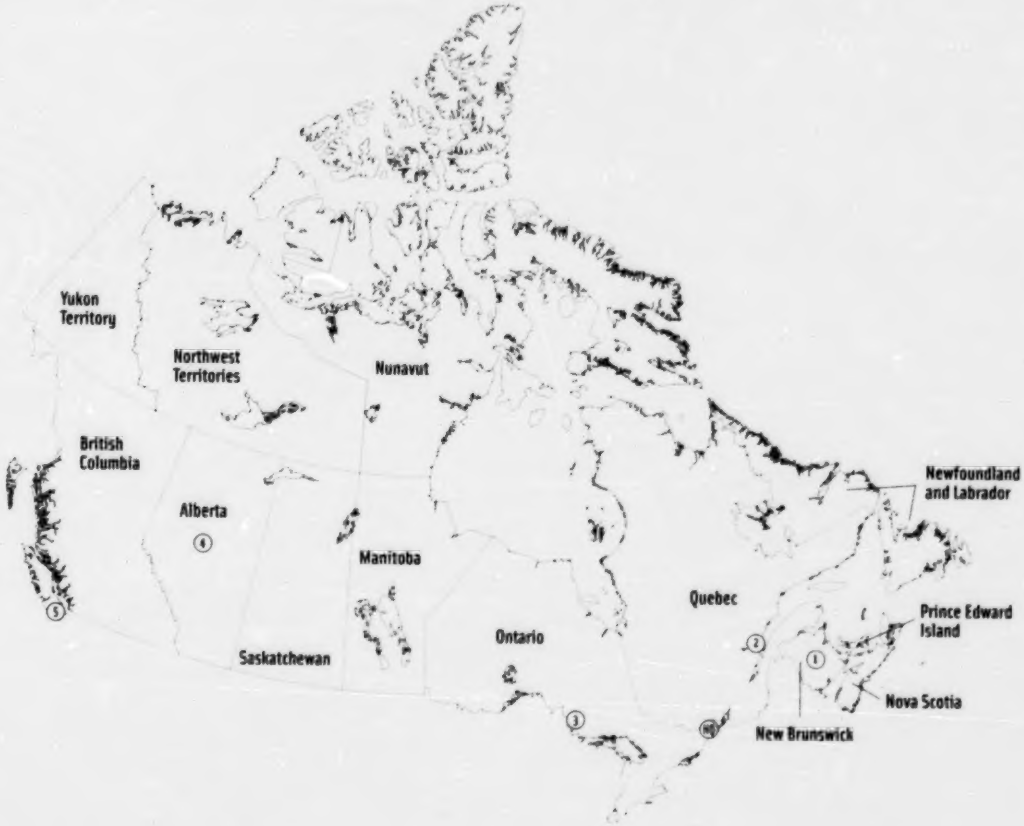

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